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ABSTRACT

After considering the effects of AACR2 (American Anglo Catalog Rules 2) on the present catalog system, this task force on catalog usage recommends that the university library retain the present catalog beyond 1981 and later adopt an online catalog. Other options considered were, in order of priority, (1) close the catalog in 1981 and start an add-on catalog, later switching to an online catalog; (2) close the catalog in 1981 and create a COM catalog, later switching to an online catalog; (3) retain the present catalog indefinitely; and (4) close the catalog in 1981 and create an add-on COM catalog for an indefinite period. The report summarizes arguments for and against each option leading to the preferred recommendation. Appendices include notes on the faculty forum, a user study, a user count, a circulation study for items having corporate main entry, and studies of previously unestablished headings. (RAA)

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REPORT OF THE

TASK FORCE ON CATALOG USAGE

Prepared for the

COMMITTEE ON THE FUTURE OF THE CARD CATALOG

University of Virginia Library

July 16, 1979

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REPORT OF THE TASK FORCE ON CATALOG USAGE

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I. INTRODUCTION

I. INTRODUCTION

The Task Force on Catalog Usage was directed to investigate the effects on the user of possible changes in the catalog after the implementation of AACR2. From the very nature of our assignment we faced a challenging, difficult problem: how to make significant, supportable statements about human attitudes and behavior. We felt responsible for representing the interests of the users, the people for whom the catalog exists. Because of this feeling, we kept all our meetings open to any library staff who wished to attend. In general, we tried to draw heavily on the experiences of others, both actual users and people who have studied catalog usage.

The charge of the Task Force, as delineated by the Committee on the Future of the Card Catalog, was three-fold: 1) For Alderman and the branches, to review the various alternative forms of the catalog in terms of the effects on the following user groups: a) library patrons; b) library staff; and c) other internal library users. 2) To rank the various alternatives in order of desirability with respect to user needs. 3) To review the display of bibliographic information in the present catalog, and recommend changes, if necessary, for alternative forms of the card catalog.

The Task Force's activities encompassed three phases: 1) gathering data, 2) analysing the data and drawing conclusions from it, 3) writing the report. First, we endeavored to obtain information about user behavior from as wide a number of sources as possible. For an understanding of what has already been discovered through studies at other institutions, we did an extensive investigation into the liter-

ature of catalog usage. This material is reviewed in Section II of the report and a bibliography is appended.

To gather information about the users of our own catalogs, we employed a variety of approaches. The Task Force sponsored a forum for faculty representatives to learn more about how faculty use the current catalog and to gauge their reactions to various possible future developments. Some of the faculty related actual experiences with microform or automated catalogs at other universities. In addition, each Task Force member was assigned a particular broad section of the library staff to interview. These internal discussions were intended to ascertain staff opinions on various possible changes in the catalog. While our findings had some bearing on our final recommendations, the responsibility for analysing staff usage mentioned in our charge was later assumed by the other two Task Forces. Also, our Task Force and the Task Force on Cost Analysis sponsored a forum for departmental library staff.

The Task Force also gathered some numerical data. We conducted a small user study which focused on certain aspects of catalog use not addressed by the literature. Over a period of weeks, we counted the number of people using the Alderman catalog, in an attempt to pinpoint the time and scale of peak use. By two different methods we tried to estimate the percentage of headings which would appear in the catalog for the first time after AACR2 is implemented, because such headings will not present a problem. Finally, we compared the percentage of corporate entries in the catalog with the percentage of books with corporate main entries which circulate, in a rough attempt to determine the use of items with corporate entries.

Once the data were assembled, we began the analysis phase by expanding and refining the old key options outline into a new outline (Section III of this report). Next, the Task Force members compiled lists of the advantages and disadvantages to the user of the five basic options we had identified. After some discussion, it was decided that this material would be better organized around three themes: to close or not close, catalog format, and sequence and timing. Ranking the basic options in terms of their desirability for the user was our final major task before writing the report. We were soon able to reach a consensus and then we proceeded to formulate justifications for the ranking of each option.

The writing of this report, from the initial drafting to the final editing, was an effort in which every member of the Task Force was fully involved. We would particularly like to thank Anne Myers for typing the report.

We offer this document in the hope that it will further understanding of, and improve service to, that group which the catalog must serve first and foremost: the users of our library.

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II. SURVEY OF THE LITERATURE ON CATALOG USE

A. INTRODUCTION

The following section presents a summary of information available to the Task Force on the catalog and the user. Most of the information is taken from the literature of catalog use studies, but some additional materials, such as findings from our user study and faculty forum, were drawn on as well. The survey includes both information which the Task Force considered in drafting its report and material which may be useful at a later time when the library begins to implement whatever course is selected for the future of the card catalog. A bibliography of the catalog use studies referred to in the text follows this section.

B. USERS OF THE CATALOG

Studies at both Yale and Michigan indicate that the primary users of large academic library card catalogs are students, with use about equally divided between graduates and undergraduates. Faculty use of the catalogs is low by comparison, both in terms of absolute numbers and per capita usage.

In the Yale study Lipetz found graduate students as a group to be the heaviest users; they were followed closely by undergraduates (p. 7). Per capita use of the catalog was "somewhat higher for upperclassmen than for graduate students" (p. 7). "Per capita use by freshmen and by faculty [were] equal and [were] at a level about half that of upperclassmen" (p. 7). Note that

lower faculty use of the catalog does not necessarily indicate lower use of the library's collections, given such factors as the availability of research assistants (cf. Lipetz, p. 41). Lipetz also found that 19% of all catalog use was by persons not directly associated with the university (p. 41); presumably this percentage would be lower at Virginia. Use of the catalog by library staff was excluded from the Lipetz study.

Palmer, in a study done at Michigan, had very similar results, except for users not affiliated with the university. Approximately 47% of total catalog usage during the survey period was from graduates, 40% from undergraduates, and 4% from faculty. Usage by library staff was approximately 2% of the total; although not stated, this figure evidently reflects library staff use not related to work. Users not affiliated with the university were approximately 3% of the total (Palmer, pp. 63-65).

It is noteworthy that undergraduates continue to use the catalogs of large central libraries even when an undergraduate library is available in close proximity. Both Palmer and Tagliacozzo, who also conducted her study at Michigan, found undergraduate use of the central library catalog to be surprisingly high. In Palmer's words, "the undergraduate use of the card catalog is unexpectedly large in view of the fact that a large undergraduate library is immediately adjacent to the General Library" (p. 88). [According to the 1968-69 American Library Directory, the size of the undergraduate library at Michigan was 133,227 volumes at the approximate time of the survey.] Tagliacozzo found that the populations using both the undergraduate library and central library catalogs at Michigan were very similar: "In both, the users are

primarily university students, about equally divided between graduates and undergraduates, with a prevalence of students from the humanities and social sciences" (Tagliacozzo, ISR, p. 365).

C. TOTAL USE OF THE CATALOG

Total annual use of the Alderman catalogs, or of the catalogs in the branch libraries, is difficult to determine without actually counting each person who approaches a catalog drawer. It is interesting, however, that Lipetz found a very close correlation between circulation figures and catalog use; his findings make possible an approximate calculation of use of the Alderman catalogs. Obviously those who use the catalog do not check out every item searched, and many books which are checked out are not looked up in the catalog. Yet Lipetz found that these factors tend to balance out, "leaving book borrowing and catalog traffic directly proportional to each other throughout virtually the entire academic year" (p. 33).

The total number of persons actually consulting the catalog in the main library at Yale during the year of their survey was approximately 320,000. Total annual circulation of books from the main library, whether inside or outside the main building, was 370,000. For 1977-78 the comparable total circulation for Alderman was approximately 360,000, which is close to the 1967-68 figure at Yale. [The total for Alderman includes the main desk, reserve book room, and interlibrary loan, but not bound periodicals or unbound periodical issues.] If the phenomenon observed by Lipetz at Yale is at all transferable, the total annual use of the catalogs in the main hall of Alderman is probably in the range of 300,000 to

325,000. It should be emphasized that this is only an estimated figure, since the pattern in Alderman may be different due to a number of factors. Again, keep in mind that Lipetz excluded library staff use of the catalog.

D. TRAFFIC PATTERNS AND PEAK USE

The Lipetz study also traced variations in the amount of catalog use on a weekly, daily, and hourly basis. His findings, along with the Task Force's rough count of users of the Alderman catalog, make it possible to determine the approximate peak use of the catalog and also the times when public service staff will be most needed at the catalog to assist patrons.

On an hourly basis Lipetz found that "the rate of influx of catalog users builds to a morning peak at about 11:15, drops off through the early lunch period, then builds rapidly to a maximum just before 2 P.M., remains high until 4 P.M., drops rapidly to an extremely low level just after 6 P.M., rises again after 6:30, but not very much, and finally drops off again from 8 P.M. until closing time" (p. 36). This corresponds very closely to our count of catalog users, except that there appears to be no real drop in Alderman at the lunch hour. Use increases steadily until mid-afternoon, drops at the dinner hour, increases again until about 8 P.M., and then falls off.

On a daily basis Lipetz found use to be heaviest on Tuesdays, with an average number of 106.5 entrants into the catalog area per hour. Then, in decreasing order, the average hourly entrant rate was 102.0 on Wednesday, 100.4 on Monday, 95.0 on Thursday, 92.6 on Friday, 82.5 on Sunday, and 81.7 on Saturday (p. 35). Our

user count corresponds exactly to this pattern, with maximum catalog use on Tuesdays and minimum on Saturdays.

Lipetz also found that catalog use fluctuates with the academic calendar year. Heaviest use during the fall semester was in early December, following Thanksgiving vacation. For the spring semester, heaviest use was in April. A chart plotting "users per week" and "users per hour of library open time per week" for a 62 week period is included on page 29 of the Lipetz study.

The count of people exiting Alderman in the Circulation Department Annual Report for 1977-78 indicates that our monthly pattern is different. For the spring semester, April is the month of heaviest traffic in the library, but for the fall semester, October has the greatest total (105,476) followed by November (99,803). Daily circulation figures correspond to the monthly traffic totals. Book borrowing is heaviest in late October and all of November, and in late March and all of April.

Our user count determined that the highest number of non-staff users at the catalog at any one time was 16. However, since the count was done only from February 26 to April 9, the time of absolute peak use was probably missed. It would nonetheless be fairly simple to determine the actual peak use by taking a recount during the months of October, November, March and April. Counting would need to be done only during the early and mid-afternoon, the time of maximum catalog use, and perhaps only on Tuesdays.

For a summary and statistics of the Task Force's user count, see Appendix III.

E. TYPES OF CATALOG SEARCHES

There are several types of searches undertaken by users in their approaches to the catalog. By far the most frequent are known-item and subject searches. In a known-item search the catalog user is "aware of the existence of a particular book or other publication that he wants to locate" (Lipetz, p. 43). The accuracy and completeness of the users' bibliographic information in such searches varies greatly, so it should not be assumed that they "know" the "known" item. In a subject search the catalog user "wants to identify and locate one or more documents pertaining to some known topic" (Lipetz, p. 43). Users' knowledge of both the subject under investigation and the subject headings in the catalog also varies greatly. Other, less frequent types of searches are the author search, in which the user wishes to identify what works by a given author or what editions of a particular work are available in the library, and the bibliographic search, in which the patron uses the catalog to supply or verify bibliographic information (cf. Lipetz, p. 43).

Several studies of catalog use have established distributions of these types of searches among users of large research library catalogs. The results of the studies are very similar. In his work at Michigan, Palmer found that 69.78% of the 5,067 users who completed his questionnaire were seeking known items, 27.74% were searching for information on a subject, and 11.45% wanted bibliographic information (p. 70). [Palmer's total is more than 100%, since many interviewees checked more than one category.] Tagliacozzo's interviews with almost 900 users of the central

library at Michigan produced a distribution of 71.7% known-item searches, 22.2% subject, and 6.1% other searches (Tagliacozzo, ISR, p. 366). The Lipetz study, based on more than 2000 interviews, found a distribution of 73% known-item, 16% subject, 6% author, and 5% bibliographic searches (p. 44).

An important finding of the Lipetz study was that a significant portion of known-item searches are actually disguised subject searches. In other words, many who searched for known-items were actually interested in information on a subject. Rather than search for a subject heading, they sought a known item likely to contain the desired information; however, they did not regard the known item as the sole object of their search. When this factor was taken into account, Lipetz found that, in terms of their underlying objective, 56% of all searches were for known-items and 33% were for subjects. He concluded this "indicates that about a third of the catalog users are basically interested in subject or topical information, but that half of these users attempt to use a document [i.e. known-item] search for a subject search" (p. 45). The reasons why subject searches were "sublimated" into known-item searches was not investigated by Lipetz. However, experience of public service librarians would suggest at least two primary reasons--ignorance of the existence of subject access in the catalog and, at the other extreme, awareness from past experience of the limitations of subject headings.

Both Palmer and Tagliacozzo found that there was significant variation in the distribution of searches depending upon the user group involved. More specifically, there was an inverse relationship between the amount of subject searching and academic rank of the

user: undergraduates do proportionally more subject searching than graduates, and graduates more than faculty. The following are the percentages of subject searching found by Tagliacozzo:

Undergraduates	
a) Underclassmen	42.4%
b) Upperclassmen	31.7%
Graduates	19.8%
Faculty	12.6%

(Tagliacozzo, ISR, p. 367)

Palmer's results were similar: "...percentages of users seeking specific works increases from undergraduates (65%) to graduates (73%) to faculty (79%). Also, in inverse fashion, the percentage of users seeking works on a subject decreases from undergraduates (36%) to graduates (22%) to faculty (20%)," (p. 66). The ALA Catalog Use Study done in the 1950's reported that, for the college and university libraries surveyed (approximately 2300 users), subject searches were 54% of the searches done by undergraduates, 42% of those done by graduates, and 34% of faculty searches (p. 10). All of these findings confirm the logical hypothesis that undergraduates are less likely to have knowledge of the literature of a given subject field and are therefore more likely to use the catalog to identify and select materials in that area.

F. KNOWN-ITEM SEARCHES

Approaches to known-item searches

Of the known items sought by catalog users, Lipetz found that 80% were monographs and 20% were periodicals (p. 3). The distribution of user approaches to these known-item searches was as follows:

Approach	Percent
Author name (personal or corporate)	62.0
Title of monograph or periodical	28.5
Subject term	4.5
Editor name	4.0
Author or title of portion of work (including individual periodical articles)	.5
Series title	.2
Other (publisher, translator, geographic location, etc.)	.3
	100.0

(Lipetz, p. 48)

The Lipetz findings suggest a preference by users for searching known items first under author. This preference is even greater if one considers that in most searches for periodicals (20% of all known-item searches at Yale), the user is likely to have only the title available (cf. Lipetz, p. 55, 57). If periodicals had been excluded from the Lipetz figures, he would have found that approximately 77% of the remaining searches were approached by author.

Such a high preference for searching known items under author was indeed found by Tagliacozzo. Her overall distribution of known-item approaches was almost identical to Lipetz--65.5% author, 28.9% title, and 5.6% subject heading. But in those instances

where users had a choice between author and title, i.e. where they had information on both, 85.2% started their search with the author. In all cases where title was searched first, 68.5% of the users were forced to look there because they did not have author information, but in all cases where author entry was used first, only 20.5% were forced to that access point because they did not have title information (Tagliacozzo, J. Doc., p. 244).

It might be noted parenthetically that Tagliacozzo's findings on the prevalence of author searching conform to the results of the user study conducted by the Task Force. For the two questions in which users were asked to find monographs and were also given author and title information, 92% searched first under author.

One rather surprising finding of the Tagliacozzo study was that "even when the user has extremely poor or totally wrong information about the author, he still chooses it in preference to his perfect title" (J. Doc., p. 244). When author information was incomplete, the user still preferred the author search 81.1% of the time (J. Doc., p. 244). As Tagliacozzo notes, the user is not always aware that the author information he or she has is incorrect.

For those users who persevere in their searches for known items--and this is a relatively small percentage of users--searching under title and subject approaches increases after the first unsuccessful attempt. Tagliacozzo found that on the first trial almost two-thirds of users choose author as access point. On the second trial, author and title are about equal as choices, 34.5% and 37.3% respectively. The use of subject approach increases from 5.6% on the first trial to 28.1% on the second. Subject searching becomes

the predominant means of searching on the third trial, comprising approximately 63% of the cases (ISR, pp. 375, 379-80). Because of the increased use of subject approach in extended known-item searches, Tagliacozzo concludes:

> A catalog...designed to retrieve specific documents only, could certainly be built more cheaply if one were to forego the demanding and costly process of content analysis and surrogation needed for subject indexing; but in so doing one would abandon a powerful instrument for the retrieval of items with imperfect author and title. (ISR, p. 380)

This conclusion would appear to be especially applicable to an on-line catalog, where the user could retrieve specific items by using Boolean logic to combine parts of the author or title with the subject heading.

Searches for known-items with corporate authors

The Task Force was particularly interested in determining whether users approach known items having corporate authors in the same way they approach known items having personal authors. Information on this subject is important, since the most complex problems resulting from AACR2 will involve corporate headings.

The experience of reference librarians suggests that, while personal author entries are heavily favored in known-item searches, corporate entries tend to be avoided in favor of titles. Unfortunately the major studies of catalog use did not differentiate between personal and corporate author searching. Apparently the only relevant study in the literature is an analysis by Spalding of 2214 searches done in the general reading rooms of the Library of Congress in 1950. Spalding found the following:

> Books which were cataloged under a government heading were found by main entry significantly less frequently

> than books cataloged under other types of main entry, reflecting thereby the difficulties readers experience with government headings. Even so, it may be surprising that in as many as one out of four times such publications are used, they are located by means of the main entry. (p. 96)

Note that Spalding's finding was for government headings, which are not all of corporate entries. Also, it is likely that files for government headings in the Library of Congress are larger and more complicated than similar files in university research libraries. Keeping these factors in mind, there is still a significant difference between Spalding's findings for government body main entries and the results of the studies by Lipetz and Tagliacozzo for authors of all kinds. Spalding determined that, in searches for known items having government body main entries, approximately 25% are found under the main entry. Both Lipetz and Tabliacozzo found that approximately two-thirds of all known items are searched under author, and this percentage is even higher when items which have only titles are excluded.

The response to one question in the user study conducted by the Task Force sheds additional light on this matter. To complete the question, users should have searched a corporate heading at some point. Task Force members noticed a marked reluctance of users to search under the corporate entry. In fact, many users seemed to lack understanding of the concept of corporate authorship. The avoidance of corporate headings was particularly remarkable in view of the fact that almost all of these same users searched under personal author for two other items on the question sheet.

The Task Force was also interested in determining whether items which have corporate main entries circulate in an amount either

above or below their proportional representation in the catalog. To provide some indication of this, 457 call numbers were randomly selected from all call numbers which circulated during the 1977-78 year. The call numbers were then checked against the shelflist to determine type of main entry. Items which had corporate main entries made up 4% of the total. The actual percentage of corporate main entries of all main entries in the catalog is approximately 6%, according to the random sample of one year of OCLC archival tapes. This result indicates that items with corporate main entries circulate at a rate one-third less than their actual representation among main entries in the catalog.

The result of the sampling of circulation suggests that the actual catalog use of corporate main entries is less than their representation in the catalog, but this cannot be stated with certainty. Presumably circulation reflects catalog use to an extent, but the correlation between the two is not exact. The fact that an item circulates does not indicate how it was actually found (if it was searched in the catalog), since it may have been sought under main entry, added entry, title, or subject. The full results of this study are reported in Appendix IV.

In summary, the Task Force believes that there is considerable (though not entirely conclusive) evidence which indicates that:

1) in known-item searches, corporate entries are sought at a much less frequent rate than personal entries, and

2) overall, the circulation of items having corporate body main entries is less than their proportional representation in the catalog.

Success rates in known-item searches

The major studies of catalog usage have determined success rates in known-item searches, and several of the studies have also analyzed the primary reasons for failure to find the items sought. According to these studies, users are successful 80 to 85% of the time in locating the items they search for in the card catalogs of university research libraries. At Michigan Palmer found that 84% of the 5,067 users who were surveyed were successful in finding what they were seeking (Palmer, p. 77). The Lipetz study resulted in an identical 84% success rate for the Yale catalog:

> Results of document searches showed that almost 84 percent turned up the desired item (with one or more additional items identified in 9 percent of these searches). Another 2 percent turned up useful supplemental documents, but not the specific document originally desired. Only 14 percent of the searches turned up nothing at all.
> (Lipetz, p. 47)

The Tagliacozzo study at Michigan revealed a success rate for the central library catalog of 81% (ISR, p. 369).

The fact that 15 to 20% of the known-item searches are not successful does not mean that the catalog fails in its function in that percentage of the searches. The primary reason why users do not find what they look for in the catalog is that many of the items are not in the library's collection--a factor obviously not the fault of the catalog. When such "collection failures" are taken into account, one arrives at the percentage of "catalog failures," i.e. those instances in which users fail to find items which do exist in the catalog.** Lipetz found that the catalog failure rate

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*** There are, of course, many items in a library's collections which are not represented in the catalog. Searches for such materials were neither defined nor categorized by the major catalog use studies.

at Yale was 5 to 6% of all known-item searches (p. 52). Tagliacozzo found a much larger catalog failure rate of 13.7% at Michigan (ISR, p. 369). As will be discussed below, not all catalog failures are actually the fault of the catalog, since many users have information which is so inaccurate or incomplete that the items, though they are in the catalog, could be found only through lengthy and exhausting searching.

Variations in success rates with size of the catalog and user group

Tagliacozzo found evidence to indicate that the proportion of collection failures decreases with the size of the catalog while the proportion of catalog failures increases. In other words, larger catalogs contain higher percentages of the items patrons seek, but in using them patrons are also more likely to miss existing entries. According to Tagliacozzo, in the undergraduate library at Michigan 33.5% of the users failed to find the items they sought in the catalog. Of these searches, three fourths failed because the item was not in the collection and one fourth (or 8.3% of all searches) because users did not find existing entries in the catalog. In the central library catalog, which at the time of the study contained over 4 million cards as compared with 268,000 in the undergraduate library, 19% of all searches failed. Approximately one fourth of these were collection failures and three fourths (or 13.7% of all searches) were catalog failures (J. Doc., p. 233). This finding led Tagliacozzo to conclude:

> In collections of the same type, a user's chances of success in finding a catalogue entry are affected by the size of the catalogue: more entries are missed in a large catalogue than in a small one.
> (J. Doc., p. 249)

Tagliacozzo's conclusion is supported by the much older A.L.A.

Catalog Use Study which found that "academic libraries display a perfect correlation between the incidence of failure and the size of the catalog" (p. 14). A primary reason for this phenomenon is the fact that many users approach the catalog with inaccurate or incomplete information. Their chances of finding items which are cataloged are obviously better in a smaller catalog where, for example, a user who knows only an author's last name of the first word of a title will have shorter files to search.

Surprisingly, the catalog use studies discovered no differences in success rates for various user groups. Lipetz found that underclassmen, upperclassmen, graduates and faculty all seem to find what they are searching for in the catalog with about equal rates of success (cf. Lipetz, pp. 49-50). Lipetz did not break down the data for each user group into collection failures and catalog failures. Thus it is possible that, for example, the collection failure rate for freshmen as compared to faculty is relatively low and the catalog failure rate relatively high.

Collection failure and the importance of on-order information

Both Lipetz and Tagliacozzo found that collection failure was a large factor in unsuccessful searches of the catalog. A significant portion of these collection failures involved recently published items.

At Yale 84% of known-item searches were successful. Of the 16 of every 100 searches which failed, "10 failed simply because the documents were not in the catalog" (Lipetz, p. 4). In a follow-up check of these users' searches, Lipetz found that "one fifth of this group of documents were added to the catalog from 1 to 12

months after the user's unsuccessful search" (p. 52). Had these items been in the catalog at the time of the search, approximately one-fifth of the collection failures would have been avoided. Overall the success rate of known-item searches would have increased from 84 to 86%.

In a study done at two British university libraries, 72% of the unsuccessful searches were due to the fact that the items were not in the catalog. Of these failed searches, a little over one-fourth were for items which were either on-order or were in the library but not yet cataloged (Seymour, pp. 17-18; cf. Lancaster, p. 59).

The findings of both the Yale and British studies are supported by one result of Palmer's study at Michigan, done in 1968. He found a significantly lower success rate among users searching for recently published items:

> Among those seeking works with various publication dates, those seeking works in the first half of this century were most successful, with a success rate of almost 89 percent. Those seeking works before 1900 followed closely with a success rate of almost 88 percent. Those seeking works from 1951 to 1960 were 87 percent successful, and those seeking works from 1961 to 1967 were almost 82 percent successful.
>
> (Palmer, p. 77)

Had Palmer separately categorized items published within the two years immediately prior to his study, it is likely that the success rate for this group would have been considerably below 82%.

All of these findings indicate the importance of both prompt cataloging and providing on-order information in the catalog. Due to many unavoidable factors (e.g. delays in the receipt of on-order items or holding patterns in the cataloging process), there is often a lengthy period between the time a book is ordered and the time its

cards are filed in the catalog. Providing on-order information in the same file with cataloged items has an important advantage for the user, since it helps reduce the number of known-item search failures which would otherwise occur. The order slip does not, of course, constitute full cataloging, but access remains reasonably good since the large majority of users search for known-items under author, the filing point used for our non-science order slips. The Task Force's user study has also indicated that users understand the significance of the on-order slip. While many of them do not realize that an on-order book may already be in the library, almost all of those interviewed indicated that, if they needed an item, they would ask either in Reference or at the Circulation Desk to find out when it would be received. Presumably, therefore, many users who find order slips learn about the "rush" and "rush notify" procedures. This conclusion is supported by the ever increasing volume of rush requests processed through Reference.

In summary, the presence of order slips in the Alderman author-title catalog makes it likely that our users' overall success rate is higher than the user success rates in catalogs of comparable size which do not include such information. Any future catalog adopted by the library should, if at all possible, include on-order information.

Reasons for catalog failure

Primary reasons why users fail to find items which are entered in the catalog are (1) that they do not understand filing rules, (2) that they search for items which are parts of unanalyzed collected works or for series which are not traced, and (3) that they have inaccurate or incomplete information.

User failure to understand filing rules is frequently encountered by public service librarians and was also observed in our user study. A small but apparently significant number of users fail because they search for items which are parts of unanalyzed collected works. All types of users encounter this problem. At the one extreme, some unsophisticated users search for authors or titles of periodical articles. At the other extreme, users who may be quite sophisticated search for authors or titles of items in series which are held together unanalyzed. One section of the A.L.A. Catalog Use Study which summarized interviews in five college libraries found that: "more than one fourth (27%) of those who failed to locate the desired items although they were available in the library, sought individual essays, short stories, or plays which were part of unanalyzed collected works" (p. 63). Public service librarians also encounter a small number of users who search series which are not traced.

Accuracy of user information in known-item searches; the potential value of an on-line catalog

By far the main reason why users do not find items which are in the card catalog is that they have inaccurate or incomplete information. The studies by Lipetz, Tagliacozzo and Ayers have analyzed this question in some detail. All three studies support the conclusion that users frequently approach the catalog with poor information and that this problem is a major factor in catalog search failure. The studies also confirm the hypothesis that users remember titles better than authors.

Lipetz found that in 42.2% of the known-item searches at Yale

the user had accurate and complete information about the author. 23.2% had author information which was only partially complete and accurate, and 10.5% had inaccurate information. [Note that approximately 18% of the searches were for items which did not have authors, primarily periodicals.] Lipetz found that the user's information about titles was slightly better. In 61.5% of the known-item searches users had complete and accurate title information. 15% had only partially complete and accurate titles; 15.5% had inaccurate titles (p. 56). His figures show that in about one third of all known-item searches users have author or title information which is either inaccurate or only partially complete and accurate.

In her study at Michigan, Tagliacozzo did a much more sophisticated analysis of the accuracy of user information, including detailed categorizations of degrees of accuracy. Her results are comparable to Lipetz, though she did find that user information on author was substantially less accurate than title information. Allowing for items which did not have authors, she determined that "the chance that a user would approach the catalog with perfect or near perfect information is much higher in the case of titles than in the case of authors (70.0% vs. 41.9%)" (J. Doc., p. 240). She also found, not surprisingly, that the percentage of user failure to find items which were in the catalog increased as the accuracy of author and title information decreased. For example, users who had author information which was highly precise failed to find existing items in 4.1% of their searches, but users who had "grossly defective" author information failed in 28.3% of their searches (ISR, p. 370).

The study by Ayres, done in a science library, also found a higher accuracy rate for titles than for authors (Ayres, p. 268-69). Lancaster, summarizing the work of Ayres and his colleages, writes:

> The authors suggest that the mnemonic value of titles has been underestimated in the past. They also point out that many titles judged not traceable in this study could in fact have been traced in an on-line or computer-based title catalog with rotated entries.
>
> (Lancaster, p. 59)

The literature makes it clear that an on-line catalog would have immense value in the substantial number of searches where users have inaccurate or incomplete information. The memory studies done at the University of Chicago have shown that people often remember key-words in titles when they no longer recall the full titles (cf. Swanson). Users may also remember only part of an author's name, such as the first name or the first letters of the last name, or they may recall some other information about a book which is presently unusable for access in the card catalog. With an on-line catalog almost any fact which a user remembers about an item could be used in the search.

User information on publication date

Just as users often have incomplete or inaccurate author and title information, they also lack accurate information on publication dates. The Lipetz study found that in known-item searches 41% of users had no information at all on publication date, 12% had information more than 5 years wrong, 18% had information from 2 to 5 years wrong, 10% had information 1 year wrong, and 19% knew the correct year (p. 64). In other words, over half of users (53%) had either no publication date information or information which was substantially wrong (more than 5 years).

G. USE OF CROSS REFERENCES AND SEE-ALSO REFERENCES

The Task Force was extremely interested in any information in the literature on how users follow cross references and see-also references. Whether the catalog is continued or closed in 1981, users' ability to function effectively with the catalog will depend to a large extent on these two types of references. The library will also need to make policy decisions on whether to rely on either one or both of these types of references.

Unfortunately the Task Force found no significant information on references in the literature of use studies. The A.L.A. Catalog Use Study did contain one brief mention of cross references in subject searches. Among users interviewed, 3% of those who undertook subject searches did not find or did not understand cross references which were present (ALA, p. 22). However, this apparently low failure rate could be misleading, since many of the subject searches undertaken may not have necessitated the use of cross references.

Since the A.L.A. study contained the only relevant finding in the literature, the Task Force felt it would be useful to include in our user study two questions which would require users to follow the two types of references. Our results indicate that, while users are generally successful in following both types of references, they have fewer problems with simple cross references. This confirmed our hypothesis that the see reference would be less difficult, since users who search under its heading will find only the reference and will not be confused by the presence of other cards under the heading. For a fuller report on these findings, see the summary of the user study in Appendix II.

H. SUBJECT SEARCHES

The studies of catalog usage have investigated subject searching in much less detail than known-item searching, with the result that relatively little is known about the subject approach to the catalog. This is understandable, since finding information on a given topic involves more complex behavior than searching for a specific item.

As noted above in the section on types of catalog searches, the subject approach is used most frequently by undergraduates, and the percentage of subject searching declines as academic rank increases. According to Palmer, several studies (which were unavailable to the Task Force) have indicated that the subject catalog is used heavily by those who are searching for information outside of their subject field. These studies reported that "about an equal number of patrons sought information inside and outside their field of specialization" (Palmer, p. 81).

The Lipetz study found that the success rate for subject searches was almost identical to the 84% success rate for known-item searches (pp. 3, 47). However, since Lipetz investigated behavior at the catalog only, his rate of "success" is suspect. A subject card which appears to meet a user's need may lead to an item which the user considers irrelevant once it is in hand. Tagliacozzo found this to be a significant cause of subject search failure: the user often cannot tell from the cards found in the catalog whether or not the books they represent are relevant to the desired subject (ISR, p. 368; cf. Lancaster, p. 71). According to Tagliacozzo, users of the subject catalog in the general library at Michigan

were approximately 96% successful in matching their query terms with subject headings. Approximately 84% (the same percentage as in the Lipetz study) managed to find subject cards for items which they thought might be appropriate to their needs (ISR, p. 374). But only 50% of users actually found materials in the stacks which they felt would be useful (ISR, p. 378).

One important finding of the A.L.A. Catalog Use Study was that there is a distinct variation in subject searching depending upon the size of the library involved. In smaller libraries patrons more frequently used the subject catalog as a guide to the shelves and they also tended to write down all call numbers under a given heading. In other words, in smaller libraries users relied more often on going to the shelves and actually looking at all possibly relevant titles before making selections. In larger libraries, however, users relied more often on the catalog alone to make, or at least narrow, their selections (ALA, pp. 35-36). This makes sense in view of the fact that many subject files in large libraries are quite lengthy and materials on a given subject are often located at various points in the stacks.

Because users of large libraries must search the subject catalog to select pertinent items, several studies have indicated the importance of the fullest possible bibliographic information at the subject access point. For example, Lipetz writes:

> Most subject searchers are interested in retrieving only the few most pertinent items; they are usually not interested in building comprehensive bibliographies of conceivably pertinent items. Just about any category of information that appears on a catalog card can be helpful to a subject searcher at one time or another. A scope note or contents annotation can often clinch the pertinence of a document. An informative title or subtitle, or an additional subject heading, can sometimes do the same thing.... In many subject searches material

> can be accepted or rejected on the basis of age, as indicated by publication date for example. Material is often rejected on the basis of language. ...users frequently make use of collation information (especially number of pages) as a means of identifying the items that can be scanned and handled with the least effort.
> (Lipetz, p. 65)

One of the faculty members who attended our faculty forum made much the same point.

The A.L.A. study provides concrete information on the extent to which bibliographic items are used when searching the subject catalog in libraries of various sizes. To cite one example, for all libraries surveyed, the study found that users consulted a bibliography note in 4% of the subject searches. In large research libraries, however, a bibliography note was used in 11.5% of the subject searches (ALA, p. 13). In the larger library, information such as the bibliography note was obviously helpful in guiding subject searchers to the most appropriate items.

I. GENERAL INFORMATION ON THE USER AND THE CATALOG

Several of the studies of catalog usage have concluded that most catalog users have little knowledge of the structure and function of the catalog (cf. Lancaster, p. 69). As expressed in the words of Ayres, "it is unfortunately true that catalogs are normally used with a minimum of intelligence and usually by people of above average intelligence" (p. 269). The Task Force's experiences with the user study confirmed this impression. We encountered many users who made the most elementary errors in their use of the catalog. Similarly, it is a common experience of public service librarians that users do not know that the library has a subject catalog, much less how to use the L.C. Subject Headings List.

The literature also indicates that most users do not persevere very long in their catalog searches. For known-item searches, Tagliacozzo found it "rather surprising to discover that almost half of the users who failed in their first attempt gave up" (ISR, p. 375). While users were somewhat more persistent in subject searches, most attempted to find information under a single subject heading, and only a very few searches went beyond a second heading (ISR, p. 376, 380; cf. Lancaster, p. 70).

Despite these problems, card catalogs seem to be used fairly successfully by most users (cf. Lancaster, p. 71). The catalog failure rate in the Lipetz study was 5 to 6%, and many of these failures were due to the user's poor information. At Michigan the catalog failure rate was 13.7%. When users had reasonably complete information, the failure rate was approximately 4 to 5% (Tagliacozzo, ISR, p. 370). In summarizing several studies, Lancaster writes:

> Present catalogs are fairly adequate if the user is willing to work hard at searching, Improvements should aim at decreasing the amount of user effort (both in time spent searching and in time spent verifying bibliographic information) needed to search the catalog.
> (p. 70)

J. USER RESPONSE TO MICROFORM CATALOGS

The literature indicates that user response to microform catalogs, when considered apart from the questions of multiple-file searching and truncation, is generally favorable.

At the Los Angeles County Public Library, for example, three fourths of the users surveyed were favorable to the COM catalog, and total catalog use went up by 9% after COM installation (Aveney, pp. 82,83 and Butler, p. 19). Note that Los Angeles County used

ROM viewers, which users considered very readable and easier to use than the card catalog, and that the entire catalog for each library was contained in a single file. Reports on COM catalogs at the University of Toronto (DeBruin), Western Kentucky University (Wassom) and Georgia Tech (Greene) all indicate favorable user response to COM.

Users do seem to react differently to microform catalogs depending upon such factors as the type of reader, the quality of film or fiche, queuing, and the provision of seating and writing space (cf. Dwyer, p. 2). Mechanized rollfilm viewers appear to be preferable to fiche readers. At Toronoto 68.3% of users surveyed found the ROM microfilm catalogs easy to use, while 53.9% judged the microfiche catalogs easy to use (DeBruin, p. 262).

K. USE OF CLOSED CATALOGS AND MULTIPLE FILES

Until recently very little concrete evidence has been available on user response to closed catalogs. While reaction to the COM catalogs at Toronto was generally favorable, it was disturbing that users tended to ignore the supplements to the basic catalog. Blackburn describes the response to the supplements at Toronto as follows:

> The greatest suprise, for many of us, was the light use of the supplements. We knew, of course, that use is spread over the whole collection and is not concentrated on the acquisitions of the last few months, but we were still exceedingly concerned about keeping the catalog up to date. Although the supplement was the very first micro-catalog to be mounted for use, our survey five months later showed that many of our readers were unaware that it existed, and those who did know about it used it only occasionally or never. It accounts for less than 3% of their use.
>
> (Blackburn, p. 428)

According to one member of the Task Force who visited Toronto, the poor location of the supplements may have played a role in their

infrequent use. It was thus unclear whether the problem at Toronto was resistance to multiple-file searching or simply the location of the supplements.

Given this inconclusive evidence, the Task Force was interested in finding any additional information on user response to searching multiple files. We wondered if the general reluctance to persevere in searching as well as a general lack of knowledge of catalog structure would mean that many users would be unaware of add-on catalogs and that many others would balk at having to search multiple files. To cite one analogy for the latter behavior, reference librarians often observe patrons who simply give up rather than search numerous volumes of an index or several supplements of a catalog such as N.U.C. Would users of the card catalog exhibit similar behavior?

A recent study done at the University of Oregon addressed this question. The results of the study were presented by James Dwyer in a paper at the A.L.A. annual conference on June 24, 1979. A copy of the paper was made available to a member of the Task Force, and full results of the study will be published in the July issue of the Journal of Academic Librarianship. Since this is the only study we found which concentrated on user response to closed catalogs and multiple file searching, it is summarized here in some detail.

At Oregon the basic card catalog was filmed in 1975. Cataloging since 1975 was made available on COM supplements to the filmed catalog. The author/title catalog in the main library was kept open and the subject catalog was closed. It is not clear from Dwyer's paper whether the card catalog and the microform catalog were available for use side by side in the main library. In one

branch the entire card catalog was replaced by the microform catalogs.

Over time, positive user response to the basic filmed catalog decreased and the negative response increased. During the course of one year, the percentage of users who considered the filmed catalog "unacceptably illegible" rose from 14 to 36 percent (p. 3). Response to the COM supplements was far less critical, with a high percentage of those who used the supplements ranking them good in legibility. But paradoxically, the COM supplements, which were ranked better in quality, were little used in comparison to the filmed catalog. For the period of the survey, an average of 36% of all users never consulted the COM supplements (p. 4). In the Architecture and Allied Arts branch, where only the microform catalogs were available, 15% did not use the supplements. Dwyer writes: "considering that our supplements contain the records for all materials cataloged since May, 1975 as well as all recats and reclasses, an overall figure of 36 percent nonuse is unacceptable" (p. 4).

In an attempt to determine whether the microform catalogs improved or hindered access, Dwyer's survey asked users whether the microform catalogs were harder or easier to use than the card catalog. "Less than a quarter of those surveyed reported that the micro-catalog was easier to use than the card catalog, 29 percent considered the two forms comparable, and nearly half said that the fiche catalog was harder to use" (p. 7). In the Architecture and Allied Arts branch, 87% of users considered the microform catalog harder to use; note that these users were totally reliant on the microform catalogs for access.

User response to COM, the filmed catalog, and the overall

catalog structure which resulted, led Dwyer to conclude that the problem for users was searching multiple files, rather than catalog format. He found that "respondents were vocal in their opposition to the multiple file approach" (p. 6). In his words: "the problem is clearly not one of the medium chosen (card, film, fiche, or on-line) but of multiple files" (p. 8).

Why the negative response at Oregon, when other libraries have reported acceptance of microform catalogs? Dwyer argues that "these institutions have incorporated retrospective records into their data bases, thus reducing or eliminating the multiple-file problem" (p. 7).

L. BIBLIOGRAPHIC DISPLAY

The two major studies which have yielded information on bibliographic display and the user are Palmer and Lipetz. The main conclusions of the two studies are quite different in emphasis.

In Palmer's study, those surveyed were asked whether they consulted specific items of catalog-card information in the searches they had just completed. He found that "fewer than 10 percent of the patrons indicated their use of the following: author's birth-death dates, pagination, size, series note, translator, illustrations, tracing, bibliography note, and Library of Congress card number" (p. 82). A table of the use of individual items on the catalog card is provided on page 83 of the Palmer study.

The main purpose of Palmer's work was to determine if users would find what they needed in a hypothetical computer catalog with records consisting of author, title, call number (including location), subject headings, and date of publication. He found that "84 percent would

have been successful with the computer catalog" (p. 84) and that the success rate would have been 90% if the contents note were included as a sixth item (p. 86). "16 percent of those who were successful in using the card catalog desired more catalog card information in the computer catalog in order to be successful in their search" (p. 84).

Palmer determined that the computer catalog "would have been less satisfactory for research purposes than for class assignments, personal use, or teaching" (p. 85). He also found that those doing subject searches would have been less satisfied than those seeking a specific work, 77% versus 88% (pp. 85-86). This finding conforms to Lipetz' point about subject searching mentioned above, i.e. that those who search by subject need full information to select appropriate items.

While Palmer felt that his results indicated that "some items presently on the catalog card might be removed without damaging the catalog's ability to fulfill most patrons' demands" (p. 86), he was nonetheless very cautious about the implications of his study. He asks: "When is a percentage of use of a catalog item small enough to be disregarded in the design of a computer catalog? Is 10 percent, 5 percent, or even 1 percent small enough?" (p. 92). He found the "conclusion...inescapable that more needs to be known about user requirements before a reduced computer catalog could be confidently prescribed to replace a university library card catalog" (p. 93). Finally he recommended a careful cost-benefit analysis of every item which would be included in records for a computer catalog.

A major purpose of the Lipetz study was to compare human behavior in searching card catalogs to potential methods of retrieving information from computer catalogs. He concluded that a combination

of computer retrieval methods could be developed which would "approach or surpass human performance" (p. 61). However, he argued, this would only be possible if records in the computer file contain a "variety of data elements" (p. 5). His study determined that users reject many records as not relevant on the basis of various elements of information on the catalog cards which are not used as access points. These elements include such items as the language of the work, date and place of publication, contents and bibliography notes, author's birth and death dates, subject tracings, etc. (p. 62). In his view, computer catalogs could only perform the same retrieval functions if these additional data elements are included in the catalog records and if the system is designed to accept these elements as search keys. Otherwise, computer searches would retrieve unmanageable numbers of records, many of which would be irrelevant. He concluded:

> There is a strong temptation among would-be catalog computerizers to deal with the high cost of computer memory units and processing units by cutting to an absolute minimum the types of information to be included in a catalog record.... It should be understood, however, that this would tend to make the computerized catalog inherently incapable of achieving the same retrieval efficiency (selection and rejection capability) as the conventional catalog.
>
> (Lipetz, p. 62)

Like Palmer, Lipetz called for further study of the costs and benefits of the data elements in records for computer catalogs.

Despite their differing emphases, Palmer and Lipetz are in agreement that the questions of bibliographic record content and bibliographic display, including by implication the question of truncated records at certain access points, should be approached with caution. Both argue that decisions on what elements should

be included in bibiographic records should be based on careful analysis of all factors involved, including both effects on users and costs.

A FINAL THOUGHT ON USER BEHAVIOR AND THE CATALOG

"I suggest that it is our responsibility as information professionals to know and understand people's search behavior and to design services to optimize the likelihood for people getting to the information they need given their patterns of behavior."

Marcia Bates (quoted by Dwyer, p. 6)

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III. BASIC OPTIONS CONSIDERED BY THE TASK FORCE

Basic Options

I. Retain present catalog indefinitely

II. Retain present catalog beyond 1981; later adopt an on-line catalog

* Variation on Options I and II - "The Princeton Plan"

III. Close in 1981 and start an add-on card catalog; later switch to an on-line catalog

IV. Close in 1981 and create an add-on COM catalog for an indefinite period

V. Close in 1981 and create an add-on COM catalog; later switch to an on-line catalog

Content Alternatives

A. Overall content

1. All materials cataloged after Day One
2. All materials cataloged after SOLINET start date
3. No. 1 or no. 2, plus high circulating items

B. Types of materials

1. On-order information
2. Non-Roman alphabet materials
3. Government documents
4. Manuscripts
5. Law & Health Science cataloging
6. Microform sets (e.g., HRAF)
7. Rare books
8. Guide cards for uncataloged items (e.g., early American imprints)

Link Alternatives

1. Links in both directions
2. Links only from the new catalog to the old
3. Minimal links -- only for analysed serials and series used; assumes full cross reference structure
4. Interfiling in present catalog to reduce the number of links

Bibliographic Display Alternatives

1. Full record at each point
2. Full record at main entry, shelflist, and subject headings
3. Full record at main entry and shelflist
4. Full record at shelflist only

IV. ADVANTAGES AND DISADVANTAGES TO THE CATALOG USER

A. Introduction

B. The Basic Question - To Close or not to Close?

   1. Continuing the card catalog

   2. Closing the card catalog and beginning an add-on catalog on day one

C. Format Alternatives

   1. Cards

   2. COM

   3. On-line

D. Sequence and Timing Considerations

A. INTRODUCTION

After arriving at the revised basic options outline contained in Section III above, members of the Task Force prepared lists of advantages and disadvantages to the user for each of the five options. In the course of the ensuing discussion, it became apparent that most of these advantages and disadvantages were not unique to an individual option. Instead they fell into three distinct categories:

1) Advantages and disadvantages with respect to closing or not closing on Day One

   Options I and II vs. Options III, IV and V

2) Advantages and disadvantages of each catalog format

   Cards - Options I, II and III
   COM - Options IV and V
   On-line - Options II, III and V

3) Advantages and disadvantages of each implementation sequence

In order to avoid needless repetition and clarify the issues involved, we have chosen to present our discussion of advantages and disadvantages to the catalog user following the above outline.

B. THE BASIC QUESTION - TO CLOSE OR NOT TO CLOSE?

Continuing the card catalog beyond 1981

General advantages:

1. Known-item searches. Most of the time users who are looking for known items would only have to search in one place, since 90% or more of personal and corporate entries for newly cataloged items would not create a conflict and require a split file. As most users seem to be governed by the law of least effort, this is particularly important.

2. Subject searches. In the subject catalog users would rarely have to search in more than one place. Split files are possible if the subject is the name of a person or corporate body, but even in such cases most of the headings would not change.

3. Author searches. It would still be possible to search the catalog at one point to determine what works by a given author, or what copies and editions of a given work, are held by the library, except for the small percentage of headings which would change.

4. Because the changes involved are less radical than if the catalog were closed, users would adapt to them more easily. Users are generally reluctant to ask for assistance. With a single catalog they would be more likely to find on their own the items which they seek, and they would be less reliant upon user education in general.

General disadvantages:

1. With split files some references would become more complicated and confusing than they are at present, e.g. history cards.

2. Split files would be linked by see-also references. Our user study indicates that people sometimes do not use these references.

3. Because the changes in the catalog would not be readily visible, it might be difficult to alert users to its new features.

Content alternatives:

1. Overall content. The single catalog would contain all the materials the library has ever cataloged.

2. Types of materials.

a. All materials presently represented in the catalog would be retained, and it would be possible to begin adding records for documents and manuscripts.

b. There would be no need to create separate files for materials which cannot be machine cataloged.

c. On-order records would remain in the same file with records for cataloged items. Our user study indicates that the public has some understanding of on-order information, and the value of this information was stressed at our faculty forum. Moreover, the literature indicates that user success increases when ordering and cataloging data are together in one file.

3. Future duplication. Continuing the card catalog will result in increased overlap between the card catalog and an eventual automated catalog which is likely to be implemented at some point in the future. This duplication would have both advantages and disadvantages for the user. In known-item searches duplication would significantly reduce the amount of double searching in the two catalogs. User frustration and confusion would be minimal in this case, since items are unlikely to be searched in an additional file once they have located in one of the catalogs. However, in subject searches or searches for all works by a given author, the user would

encounter duplicate records. In some instances this may produce confusion.

Link alternatives:

In cases where split files are necessary, there must be links in both directions, otherwise the user would not know that the entry is present in the catalog in two different forms. However, the number of split files could be greatly reduced by interfiling personal name headings and perhaps also by recataloging small files.

Bibliographic display alternatives:

For a portion of the present catalog, the computer produced cards, the user does not have the benefit of the full record except at the main entry point. This truncation is not predicated by the form of the catalog, and if the catalog is not closed, full records could be provided at additional access points.

Closing the card catalog and beginning an add-on catalog on Day One

General advantages:

1. Starting an add-on catalog would result in consistent and uniform rules of entry in the new catalog.

2. Several studies have indicated that the smaller the catalog, the more successful users are at finding items entered in the catalog. Since the add-on catalog would be small at first, users who search it would be more likely to find the items it contains than they would if those same items were filed in the old card catalog. The significance of these advantage would diminish over time as the add-on catalog grows and it would also be reduced if OCLC records from 1975 on are included in the add-on catalog.

General disadvantages:

1. Known-item searches. A large percentage of known-item searches would be successful only if the user searches in both the old and new catalogs. Reluctance of users to persevere in their use of the catalog coupounds this disadvantage. Also, since most users do not have accurate information on publication date, they would be unable to anticipate where to begin their searches. (Note that the significance of this disadvantage would vary over time as the add-on catalog grows in size. At first most known items would still be searched and found in the old card catalog. As the add-on catalog grows, the amount of double searching would increase and at some point reach a maximum. Eventually double searching would decrease as a larger and larger percentage of the library's holdings are represented in the add-on catalog, by virtue of both new cataloging and selected recataloging.)

2. Subject searches. Users would have to search every available file (the old catalog, the add-on catalog, and any supplements to it) to determine the library's complete holdings on a given subject. Again, user reluctance to persevere in their searches compounds this disadvantage.

3. Author searches. Users would have to search every available file (the old catalog, the add-on catalog, any supplements to the add-on catalog, and perhaps a separate on-order file) to determine what works by an author, or what copies and editions of a given work, are held by the library.

4. With an add-on catalog of whatever format, users would need more assistance from library staff in order to find the infor-

mation they desire. This will require more public service staff at the catalog as well as increased user education in general.

5. Although patrons of academic libraries are of above average intelligence, our user study as well as our survey of the literature indicate they use the catalog with a minimum of intelligence and understanding of its structure and function. No matter how extensive our user education program is, many users are likely to remain unaware of even the existence of an add-on catalog and many of those who are aware of the second catalog are likely to be confused about its content versus the content of the old catalog. Thus, due to ignorance, many users are likely to miss items which they would have found if catalog information remained integrated in one file.

Content and bibliographic display alternatives

If the catalog is closed, then the recommendations for the content and bibliographic display alternatives will be determined by the format of the new catalog. These recommendations are presented as part of the discussion of format alternatives in Section IV. C.

Link alternatives

1. Providing links guides the user directly to the proper heading in the other catalog, thus eliminating a step in searching. In addition, the user is not affected by possible omissions and inconsistencies in the internal reference structure of the old catalog, and the link helps make him/her aware that a second catalog

exists. On the other hand, links are see-also references, which our user study indicates people are less able to follow than see references. Moreover, links would make some complicated references such as history cards even more confusing.

2. If links are reduced to a minimum, the great majority of references will be see references, which most people are able to follow. Elaborate references would not be made more complicated by the addition of links. With this alternative, however, the user is dependent on the internal reference structure of each catalog. When a heading has changed and a cross reference has not been made from the form used in the other catalog, a user going from one catalog to the other will mistakenly assume that the second catalog he/she searches does not contain the heading.

C. FORMAT ALTERNATIVES

Card Catalog Format

Advantages:

1. Users are most familiar with cards as a means of access to the library's collections.

2. A card catalog lends itself readily to browsing, which can sometimes be a valuable research mechanism.

3. Changes in individual catalog records can be made relatively easily, providing users current and correct information on shelving locations, multiple copies, added volumes and the like.

4. The card format allows certain types of information to be highlighted. Raised or color-coded cards can draw a user's attention to cross-references, links, etc. which might not be noticed otherwise.

5. Because of the physical configuration of a card catalog, the likelihood of queuing problems is diminished.

Disadvantages:

1. It is difficult to provide remote access because of the size of the card catalog and the expense involved in maintaining it.

2. Frequently users do not understand the filing rules governing the card catalog, and the success rate of their searches suffers accordingly.

3. Large scale changes which might benefit the user, e.g. altering subject headings, are difficult to make because each individual record must be manually corrected.

4. The studies of user behavior indicate that a large card catalog is difficult to use.

5. Cards sometimes become difficult to read because of dirt, wear, or repeated corrections.

Content alternatives:

A card catalog can potentially contain records for everything listed in the "types of materials" section of the Basic Options outline in Section II above.

Link alternatives:

The card format does not dictate any specific link alternative. Cards may be produced to serve as links for whatever reference structure is chosen. Raised cards or color-coded cards can be used to alert the user to these links. In addition, links may be avoided in many instances by interfiling conflicting entries.

Bibliographic display alternatives:

Any of the bibliographic display alternatives are feasible with the card format.

COM Catalog Format

Advantages:

1. COM can be easily reproduced and is relatively inexpensive and compact when compared with the traditional card format. Therefore, a COM catalog can be widely disseminated to locations throughout the library system, other UVa locations and libraries off-campus. The catalog is thus much more accessible to its users.

2. Because the COM reader displays a number of sequential catalog records at one time, COM is in some ways more conducive to browsing than is the card format.

3. Because COM is a by-product of machine-readable cataloging, it is possible to manipulate the data base to produce a variety of specialized catalogs and/or a full union catalog depending on user needs in each catalog location.

4. Because of the structure of machine-readable catalog records, it would be possible to make large-scale changes in a COM catalog, e.g. replacing all occurrences of a superseded subject heading. This flexibility would allow the catalog to respond more quickly to changing user needs.

Disadvantages:

1. Because of the expense involved in merging sequential files, a COM catalog would necessarily consist of at least two files - the main file and a supplement to it. This would necessitate multiple file searching in the majority of cases.

2. Record changes, updates, additions, etc. would be slow to appear in the main COM file, because of the expense involved in cumulation. Inaccuracies and out-dated information, although corrected on the archival tape and appearing accurately in the supplement, would remain in the main file for a long time, with nothing to lead users to realize that they may need to consult the supplements. Examples are recats, added copies, added volumes.

Anyone dependent on the absolute accuracy and currency of catalog information (particularly library staff members) would usually have to consult both the main COM file and the supplement.

3. A large COM catalog in fiche form can become very cumbersome and difficult to use. The main file could consist of hundreds of fiche and it would be very difficult to provide adequate maintenance of the reader stations to insure that each fiche sequence

be kept complete and in order.

4. Machine malfunction can seriously hamper patron access, especially where few public readers are provided.

5. During peak use periods there are likely to be queuing problems at some readers.

6. A user could experience significant eye strain with prolonged use of any fiche reading equipment.

7. Since COM is basically an alternative form of a card catalog, user failure to understand filing rules would continue to be a problem.

Content alternatives:

A COM catalog at its inception could contain all machine-readable cataloging input after Day One or input after the SOLINET start date. If the former alternative were chosen, the COM file would start out small and stay small for a significant amount of time. If the latter were chosen, the file would consist of approsimately 700 fiche on Day One (assuming full records at every entry point). A third alternative - a file consisting of all OCLC cataloging plus high circulation items - would result in an even larger file.

In terms of types of materials, everything that can be input in machine-readable form could be included in a COM catalog. In addition to all current Alderman OCLC cataloging, a COM catalog could include serials holdings, documents, and full cataloging for Law and Health Sciences. Also, catalog records for materials which cannot be included in the OCLC data base (e.g. on-order information, manuscripts, guide cards for uncataloged materials) could

be input as locally-produced records and merged with the archival tapes. The only records that would necessarily be excluded from a COM catalog would be those for some non-Roman alphabet materials.

Link alternatives:

Except for the interfiling of conflicting entries, all other link alternatives are feasible in a COM catalog. Full links from the new catalog to the old could probably be generated from the promised LC authority file. In addition, LC has indicated that they hope to make links available in card form. These could be retyped or overstamped to indicate their local purpose and filed in the old catalog.

The minimal links alternative is also possible with a COM catalog. This alternative is dependent on a complete and consistent cross-reference structure in both the old card catalog and the new COM catalog.

Bibliographic display alternatives:

Any of the bibliographic display alternatives listed in Section II are possible with a COM catalog. The entire range of possibilities for record display is possible - from full records at every entry point to full records in the shelflist only, accessed by a series of register indexes. It is also possible to vary the format of the individual entries themselves for maximum legibility, maximum efficiency, or a combination of the two. Also, by manipulating the print program, it is possible to provide files with almost any configuration--dictionary or divided catalogs, full union catalogs, or specialized catalogs.

The problem of displaying branch library shelving locations not currently input into the machine-readable records remains. Possible solutions include altering the OCLC profile, inputting location information into an unused field in the MARC record, or continuing to maintain card shelflists in the branches as location devices.

On-line Catalog Format

Advantages:

1. An on-line system could be designed to integrate the three basic library subsystems which have user impact - acquisitions, cataloging, and circulation.

2. A user would no longer be hampered by the lack of flexibility inherent in the card catalog or in COM. An on-line system could provide a multiplicity of access points, the ability to search via truncated search keys, as well as the ability to refine or expand a search using Boolean retrieval mechanisms.

3. Updating and correction of records could be simultaneous or nearly so (interactive or daily batch update), providing users with immediate access to the status of library materials without the necessity of consulting several files.

4. Search key structure could be set up to circumvent common sources of search failure, such as incomplete author or title information.

5. Users would not be hampered by a failure to understand filing rules.

6. All forms of headings would be linked internally through an on-line authority file. There would no longer be any need for

users to follow cross-references within the catalog.

7. The by-products of machine-readable cataloging (COM, printed book catalogs, etc.) could provide back-up for the on-line system and could be distributed to remote locations. Specialized lists could be produced for departments, individuals, etc., providing a valuable current awareness function.

8. An on-line system is likely to be inherently attractive to users. They would be less likely to overlook an add-on on-line catalog and more likely to be motivated to learn how to use it.

9. The on-line catalog can offer easy access to the full bibliographic record, no matter what access point is used.

Disadvantages:

1. Sometimes there would be queuing problems at terminals.

2. There may be slow turn-around time at peak use periods.

3. The possibility of system down-time or terminal malfunction would require that users be oriented to the existence and use of a back-up COM catalog.

4. Depending on its complexity and the presence or absence of instructional cues within the system, an initial period of user confusion may exist, necessitating additional orientation.

5. Because the user can enter the catalog file directly at the specific point desired, certain chance discoveries that are now made by browsing through a card or COM catalog may not occur.

Content alternatives:

An on-line catalog would include all materials cataloged after Day One and could include all materials for which we have machine-readable records if an automated authority file provided links.

High circulation items could be included as well.

In terms of types of materials, nothing would have to be excluded with the exception (given the current state of the art) of non-Roman alphabet materials. It is possible that with the delay before an on-line system could be implemented, some of these materials could be input in machine-readable form as well. Any other types of materials which may or may not be represented in the existing card catalog (but which cannot be input into the OCLC data base) can be input into the on-line system as locally produced records.

Link alternatives:

A full cross-reference structure within an on-line catalog would be provided by an automated authority file. Such a file could also be formatted to display links to the old catalog. Links from the old catalog to the new could be somewhat problematical, depending on the sequence of catalogs and the types of links created prior to implementing the on-line system.

Bibliographic display alternatives:

Any combination of bibliographic display alternatives would be possible in an on-line catalog, providing that it contains full bibliographic records. The system could contain a feature which would allow the user to display truncated records for a number of items "filing" on either side of a retrieved item. Thus some of the browsability of the current card catalog could be maintained. The internal file structure would then permit a user to proceed from this screen to a display of full cataloging records for any desirable items.

If the on-line system included linked acquisitions and circulation sub-systems, the catalog record could also display the current status of an item - on order, checked out, at bindery, etc. - thus saving the patron much wasted effort.

D. SEQUENCE AND TIMING CONSIDERATIONS

Basic Option I: Retain Present Catalog Indefinitely

1. Our card catalog gives users problems because of its sheer size. If the catalog is not closed at some point, its continued growth will increase these problems.

2. If the catalog is not closed at some point, it becomes more vulnerable as time passes to future changes in cataloging rules and the additional problems these changes may create for the public.

Basic Option II: Retain Present Catalog Beyond 1981, Later Switch to an On-Line Catalog

1. By not being forced to start a radically new system in January 1981, the library would have ample time to plan for offering a system truly responsive to user needs when the catalog is eventually closed.

2. At the time the on-line catalog appears, it could contain a large number of records. Because of its substantial size, it would be valuable for the user to consult from the beginning.

Basic Option III: Close in 1981 and Start an Add-on Card Catalog; Switch to an On-Line Catalog

1. If the new catalog is a card catalog, it must be started from nothing. In the beginning it will be small and of little value to the user.

2. The first point under Basic Option II also applies to this option.

Basic Option IV: Close in 1981 and Create an Add-on COM Catalog for an Indefinite Period

1. As a COM catalog grows in size, it becomes very cumbersome to use, especially in a fiche format. The rate of growth may be slowed by truncating certain records, but this is a reduction in service to the user. An even more critical factor is the size of the COM catalog when it first appears. If it begins from nothing, the user will have little incentive to consult it in the beginning due to its small size. If it first appears with all machine-readable cataloging since the SOLINET start date, it may already be too large and unwieldly, even with truncation.

2. If the new catalog contains all computer cataloged materials since the SOLINET start date, some departmental libraries will have the bulk of their collections in the new catalog. Most of the time their users will only need to consult the new catalog.

Basic Option V: Close in 1981 and Create an Add-on COM Catalog; later Switch to an On-Line Catalog

1. The user is burdened with having to learn the two new formats rather than one.

2. The two points under Basic Option IV also apply to this option.

V. RECOMMENDATIONS

A. Introduction and ranking

B. Basic Option II: Retain present catalog beyond 1981; later switch to an on-line catalog

C. Basic Option III: Close in 1981 and start an add-on card catalog; later switch to an on-line catalog

D. Basic Option V: Close in 1981 and create an add-on COM catalog; later switch to an on-line catalog

E. Basic Option I: Retain present catalog indefinitely

F. Basic Option IV: Close in 1981 and create an add-on COM catalog for an indefinite period

G. Addendum: The Princeton Plan

H. Summary of reasoning

V. RECOMMENDATIONS

A. INTRODUCTION AND RANKING

In the initial stages of drafting this report, the Task Force arrived rather quickly at the following ranking of the Basic Options in terms of their desirability for the user:

1. Option II: Retain the present catalog beyond 1981; later adopt an on-line catalog
2. Option III: Close in 1981 and start an add-on card catalog; later switch to an on-line catalog
3. Option V: Close in 1981 and create an add-on COM catalog; later switch to an on-line catalog
4. Option I: Retain the present catalog indefinitely
5. Option IV: Close in 1981 and create an add-on COM catalog for an indefinite period.

After we had already considered the options in detail and arrived at our ranking, we learned of the "Princeton Plan" as yet another possible course of action. The Princeton alternative can be considered a variation of Options I and II in that it could be a transition measure which would later be followed by an on-line catalog, or it could be a method designed to continue the card catalog indefinitely. In the former case, the Task Force would rank the Princeton Plan below Option II, i.e. rather high in terms of the other options, yet basically lower in terms of desirability for the user than retaining a single card catalog until an on-line catalog can be begun. If, however, the plan is considered a means of retaining the card catalog indefinitely, the Task Force would rank it relatively low, below Option I and above Option IV.

The section which follows presents the Task Force's recommendations in the order of ranking. In each case we have attempted to

present reasons for the ranking as well as recommendations on how specific options and procedures can best be implemented to benefit the user. The Princeton Plan is discussed as an addendum to the recommendations.

B. BASIC OPTION II: Retaining the Present Catalog Beyond 1981 and Later Beginning an On-Line Catalog (with COM Back-Up)

The Task Force unanimously recommends this option for the future of the University Library card catalog.

The implementation of AACR2 in 1981 is unlikely to bring any significant immediate improvements for the user, whether the catalog is closed or not. The Task Force feels strongly, however, that the continuation of the card catalog beyond 1981 is the best way to minimize the initial negative effects of AACR2 and at the same time allow preparation for a system which will offer genuine improvements in catalog service to the user. In essence the Task Force believes that the continued card catalog can remain a basically successful access tool until such time as it can be supplemented and eventually replaced by a more effective on-line catalog.

Continuing the card catalog beyond 1981

Compared to the other options, continuing the card catalog for a limited number of years will not present serious disadvantages for the user.

Approximately 10% or less of the headings of items newly cataloged under AACR2 will conflict with established entries. In a continued card catalog these conflicting headings could be handled by linking references, by interfiling, by recataloging, or by a combination of methods. Regardless of the procedure chosen, only a small portion of all entries in the catalog would be affected by AACR2 and only a much smaller portion of these entries would cause serious difficulties for our users. At times patrons would face confusing headings or references, particularly for corporate bodies, but for the most part the card catalog would continue to function as

it has in the past. Almost all known-item, author and subject searches would still be conducted at one point in the catalog. On-order information would remain in the author/title catalog, and separate files would not have to be created for materials which cannot be cataloged in machine-readable form. In short, all materials presently represented in the catalog would be retained in single, integrated author/title and subject files.

The importance for the user of maintaining an integrated catalog cannot be overstated. The results of Dwyer's study at Oregon indicate that closed catalogs and multiple files create access barriers for the user. Splitting any or all of our catalogs in 1981 would result at best in more ineffective and inefficient use of the catalogs, and at worst it would produce considerable user confusion and bad feeling. Many users would simply not know that add-on author/title, subject, and serials catalogs exist. An add-on catalog which begins with only a small number of records is especially likely to go unused, even though it contains recent materials which would be heavily used if integrated in one catalog.

At the heart of the question is the problem of user perseverence and the principle of least effort. With split catalogs, many known-item searches and all subject and author searches would need to be conducted in both the old and new catalogs. To be successful in their searches, users would be required to become diligent and persistent pursuers of information in the catalogs. In many cases they would have to search additional files because the desired item or material might be (but probably isn't) there. The literature of catalog use studies has shown that most users simply do not behave in this manner. If a known-item or subject is not found on the first

or second approach to the catalog, most users give up, assuming that the library does not have the desired material or that finding it is not worth the effort. Because of this perseverence factor, the catalog use studies have concluded that changes should "aim at decreasing the amount of user effort needed to search the catalog" (Lancaster, p. 71). Continuing the card catalog beyond 1981 would not decrease the effort required by the user to search the catalog, but it certainly would not result in the greatly increased effort which would be required if add-on catalogs, of whatever form, were begun at that time.

Implementing a continued card catalog

A. Links, interfiling, and recataloging

The Task Force recommends that conflicting entries in the continued card catalog be handled in the following manner:

1) Where possible, small files, especially those which involve main entries, should be recataloged to conform to AACR2. The definition of "small" is left to technical services.

2) Personal name headings should be interfiled at the AACR2 filing point. Large files which would be cumbersome to shift, e.g. Samuel Clemens, could temporarily be interfiled at the pre-AACR2 filing point. A cross-reference should guide the user from the alternate form of the name to the point where both forms are interfiled. Where possible, manual corrections should be made to reduce user confusion. Guide cards should be used liberally to warn the user that two differing forms are interfiled, especially in cases where entries differ greatly.

3) Corporate headings should be joined by links in both directions.

Reasoning:

If the card catalog is continued, it would obviously be best for the user if all old headings which conflict with AACR2 were recataloged to conform to the new rules. The Task Force realizes that this is a practical impossibility. However, it would be possible to link conflicting headings, to interfile personal name headings, and to recatalog small files. The Task Force considered two alternative procedures:

1) recataloging small files and linking all other conflicting headings, and

2) recataloging small files, interfiling all other personal name headings, and linking all other corporate body headings.

Either of these procedures would present some problems for the user. If personal name headings are interfiled, a cross-reference would guide the user from the alternative form of the name to the point where both forms are interfiled. Our user study indicates that most patrons have no real difficulty with simple cross-references, so almost all users should arrive at the point where the forms are interfiled. However, it is likely that some users would miss some items simply because of the confusion which would result from having two forms of a name interfiled at the same point. This problem could be mitigated to a considerable extent by manual corrections of the older forms. For example, the heading "Eliot, Thomas Stearns" could be easily corrected to "Eliot, Thomas Stearns" and interfiled with the new heading "Eliot, T. S." The result would be functional, if not aesthetically pleasing. Users who are referred from added entries to the old form of the main entry would follow a two-step cross-reference to the new main entry. Where forms of the headings differ radically, e.g. for Samuel Clemens, guide cards would warn

the user that the two forms of the heading are interfiled.

Under the alternate procedure there would be split files for all conflicting personal names and the files would be joined by links. The primary problem with this alternative is that some users would miss the linking reference. In our user study the see-also reference which was intended to simulate a link was missed by significantly more users than was the simple cross-reference. On balance, the Task Force believes that the user would be best served by interfiling personal names, a practice which also preserves the logical cataloging principle of collocation.

Because of our filing rules, many conflicting corporate headings would be confusing to the user if interfiled. These headings would therefore have to be joined by links. In some cases these linking references would be very complicated. The Task Force does not wish to minimize the problems which users searching such entries would face. Clearly these entries have been a problem in the past and they will be more of a problem following AACR2. However, corporate headings are a relatively small percentage of all entries in the catalog--approximately 8% (i.e. 2.5% corporate main entries and 5.5% corporate added entries). Also, users appear to search corporate headings at a rate signifiantly below their representation in the catalog.

If the Task Force's recommendation on interfiling is chosen, the card catalog would contain split files for corporate body headings only. According to the OCLC sample, approximately 70% of the headings which would change under AACR2 are personal names and 30% are corporate bodies. Since approximately 10% of headings resulting from the first year of AACR2 cataloging would be in conflict, inter-

filing personal names would mean that about 3% of all headings of newly cataloged items would require split files and links. The percentage of split files created during any one year of cataloging would obviously be less after the first year, as duplication would begin to take effect.

B. Bibliographic display

If the card catalog is continued, the Task Force recommends that the OCLC profile be altered so that full bibliographic records can be provided for new subject cards.

Reasoning:

The studies of catalog usage have shown that the subject catalog is searched by all user groups and that it is heavily used by undergraduates and also by those who are searching for information outside of their field of specialization. According to Palmer, several studies have indicated that as much as one half of all subject catalog use is by those who are searching for information outside of their subject field. Furthermore, Lipetz found that a significant number of known-item searches are actually disguised subject searches. His result suggests that the subject approach to the catalog is underdeveloped, and that there is a significant potential for increasing the utility of the subject catalog for the user. This can be accomplished if the subject catalog itself is improved and if user education concentrates on heightening user awareness of the benefits (and limitations) of subject access.

The importance of the full bibliographic record at the subject access point was emphasized at our faculty forum and it is also strongly supported by the results of catalog use studies. Most users

search the subject catalog to identify and select materials on certain topics. Since selection is paramount, all information contained in the full bibliographic record can aid the user in choosing appropriate items. Contents notes, bibliography notes, reprint information, additional subject tracings--all can be crucial in guiding the user to the best available items on a topic. The truncated subject records presently filed in our subject catalogs are not predicated by the card format. The Task Force believes that subject cards with full bibliographic records can be easily provided for future cataloging and that this would result in an important improvement in service to the user.

C. Catalog content

If the card catalog is continued, the Task Force recommends that new subject cards for the science libraries be filed in the Alderman subject catalog. The Task Force also recommends, if it is in any way possible, that a special project be undertaken to duplicate science subject cards presently available in only the Science/Technology union catalog for filing into the Alderman subject catalog. Finally, the Task Force recommends that a committee be appointed to investigate the feasibility of adding to the catalog certain types of materials which are presently uncataloged.

Reasoning:

The usefulness of the subject catalog in Alderman is limited at present by the absence of subject cards for the science libraries. This policy results in inconsistencies which are both puzzling and frustrating for users, particularly in subject areas which are represented in more than one library. For example, books for psychology

(classed BF) have subject cards if a copy is in Alderman or the Education Library. But a volume in the same class which is held only in the Psychology Library has no Alderman subject card. Similarly, books for landscape architecture (SB) and photography (TR) have Alderman subject cards if they are in Fine Arts, but not if they are held only in Science/Technology or a science branch. Also, many items classified Q,R,S, or T are not "science" materials in the minds of many users, e.g. books on camping and cooking. It is not realistic to assume that users who search in these subject areas will have either enough perseverence or knowledge of our cataloging practices to search the subject catalogs in both Alderman and Science/Technology. The situation can only be remedied by reconstructing a single, integrated subject catalog which incorporates all subject cards presently in the Science/Technology union catalog.

Given recent developments in cataloging,it may now be cost effective to add certain types of materials to the Alderman catalog. This is particularly true in the case of government documents, which now have catalog copy in L.C. form available on OCLC. The cataloging of documents could be undertaken on a selective basis, thus significantly increasing user awareness of the existence of these materials. In view of such factors, the Task Force recommends that the potential advantages and disadvantages of cataloging documents and other materials, such as manuscripts and some unanalyzed microform sets, be investigated throughly.

Closing the catalog

The Task Force recognizes that, for several reasons, the card catalog must be closed at some point. The mere size of a card catalog

is a significant factor affecting the success rate of searches. As our catalog grows, the rate of user failure to find items it contains will increase. The card catalog is also very vulnerable to changes in cataloging practice, as the crisis of AACR2 has shown. Future sets of rules will undoubtedly come, and there will also be less sweeping changes, such as alterations in L.C. subject headings. Furthermore, it is likely that in the near future technological advances will enable libraries to have automated catalogs which offer many potential benefits to the user beyond the capacities of the card catalog. In the opinion of the Task Force, these factors make it both necessary and desirable that the card catalog be closed at some future time.

The crucial question, then, is the manner in which closing is carried out. The timing of the change, the format and content of the new catalog, its bibliographic display, and links to the old catalog are all significant factors which will affect user response to the new system. Closing the catalog will present hardships for our users, but the hardships will be relatively small or relatively large depending upon how and when closing occurs. The Task Force is convinced that closing in 1981 is unnecessary and will also result in the most inconvenience and disservice to our users. Closing would best serve the user if it comes at a time when a new catalog can be provided which will offer significant improvements in catalog service and better means of access to the library's collections. Closing should be planned so that the new catalog will be, and will be perceived as, a change designed to benefit the user--not simply a change to benefit librarians. Of the alternatives open to the library, only the on-line catalog holds this promise.

The On-line catalog

The potential advantages of an on-line catalog are numerous. One of the most important is the visibility and attractiveness to the user of a fully interactive on-line system. Such a system would, of course, produce some initial user anxiety and would probably also require additional user instruction. But if designed properly, the on-line catalog will have inherent features which will draw the user to exploit its powerful capacities. At the very least, the on-line catalog will not be overlooked by most users. Once they become aware of the new methods of access it offers, they are likely to welcome it wholeheartedly.

This desirable result can only be achieved if the on-line catalog incorporates certain features. Rapid updating, multiple search keys (e.g. author, title, subject, and key-word access), Boolean retrieval, the capacity to truncate headings, and the integration of circulation and on-order information are all essential. These features would enable users to search the on-line catalog more successfully and more efficiently than they presently use the card catalog. Many items which are now missed due to inaccurate or incomplete information, or lack of understanding of filing rules, could be retrieved quickly using several search methods which are presently impossible in the card catalog. Almost all information which the user has about a single item could be used in refining a search--not only author, title, and subject, but also such items as publication date, publisher, place of publication, and even the size of the book. A system with such features would certainly provide a significant improvement in catalog service for the user.

There are several other possible features of an on-line system which would offer significant user benefits. For example, it would be possible, if printers are linked to on-line terminals, to print on-the-spot bibliographies of all items owned by the library under a given subject heading, in a given call number classification, or all items meeting given search criteria. If the system includes circulation information, then the user would in many cases be saved the frustrating step of going to the stacks to look for an item which is already checked out. Finally, if the system were integrated with an automated acquisitions system, it would offer not only the on-order information presently available in our catalog, but also up-to-date information on when items are received.

There are, of course, some potential disadvantages of an on-line system, such as user queuing, system down-time, and slow turn-around time. However, the most significant problems would be alleviated by the presence of a COM back-up catalog. While COM would not be an acceptable primary catalog, for reasons discussed elsewhere, its usefulness as a back-up is unarguable.

Content of the on-line catalog

The content of the on-line catalog will be as important for the user as its search features. In general, the greater the number of records it contains the more attractive it will be for our users and the more it will reduce their problems with multiple file searching.

If the card catalog is continued for some time after 1981, the on-line catalog would contain a sizeable number of records at the time of implementation. All machine-readable cataloging from 1981

would automatically be included in the system. By running our archival tapes against an authority system, it would be feasible to include all of our automated cataloging from the 1975 OCLC start date. If an on-line catalog were begun in 1985, for example, it would then contain approximately 500,000 records.

The Task Force also believes that it would be possible by the time an on-line catalog is begun to convert to machine-readable form records for items which circulate frequently. In fact, some of these materials are already being converted with the Clemons project. Several studies have shown that a small portion of any library's total collection accounts for a high portion of the library's circulation. For example, 20 percent of the collection may constitute as much as 80 or 90 percent of all borrowing. The Lipetz study has also shown that there is a strong correlation between circulation and catalog use. Thus, if the items which circulate frequently are converted to machine-readable form, most of the items which users search for would be in the on-line catalog. While this would not eliminate searching in two catalogs, it would significantly reduce it. Most users would only have to search the on-line catalog to find most of the items they need.

Prospects for complete retrospective conversion are also constantly improving. Developments such as optical character recognition and projects such as the Research Library Information Network proposal to divide the responsibility for retrospective conversion by subject area among member libraries may make conversion a realistic possibility in the not too distant future. Full conversion would of course totally eliminate the problem of multiple file searching for the user. The

Task Force believes that the library should follow no course of action (e.g. filming the card catalog) which would either close out or minimize the possibility of future conversion.

Bibliographic display and the on-line catalog

Flexibility of display is one of the attractive features of an on-line catalog. In the opinion of the Task Force, the only essential requirement with regard to bibliographic display in the on-line catalog is that the system contain full bibliographic records. Truncated records could be displayed in response to initial search keys or searches which produce multiple records. The user, however, must be able to access the full record when desired.

Links and the on-line catalog

If the library decides to continue the card catalog and to interfile personal name headings at the AACR2 filing point, the problem of links in the on-line catalog would be greatly reduced and perhaps eliminated. In most cases no links would be necessary for personal name headings. If a heading was interfiled in the card catalog, it would not be in conflict with the heading used in the on-line catalog. Should a conflict arise after the implementation of the on-line catalog, either a link in the on-line catalog or a cross-reference in the card catalog would be necessary. Presumably the on-line catalog would have authority control, so any user who searched it under a pre-AACR2 form of a name would automatically be referred to the proper heading. While it would be desirable to link the heading used in the on-line catalog to the variant forms of the heading in the card catalog, even this might not be necessary. Because the card catalog would contain internal

links for all corporate body split files, users would be warned to search the other part of the file no matter where they began their search.

C. BASIC OPTION III: Close the Catalog and Begin an Add-on Card Catalog; Later Adopt an On-line Catalog

This option has been ranked second among the five basic options in terms of desirability for the user. While this ranking may appear to place this option in a positive position, it must be accompanied by a qualifying statement. The Task Force on Catalog Usage is unanimous in the opinion that there is only one completely acceptable option (Basic Option II) and when we discuss the other alternatives in terms of desirability, we are really talking about the ranking of the undesirables.

The reason that Option III is ranked at the head of the subordinate list is as follows: if the catalog must be split before an on-line catalog is feasible, we should choose an option that requires searching in only two places and retains the format with which users are most familiar. Cards are familiar to more users than microfiche as a catalog format, and microfiche requires searching in more than two places.

Perhaps the most important aspect of this option is that it does not place a significant emphasis on microfiche. Fiche would serve only as a back-up to the eventual on-line system, and minimal orientation with fiche would be necessary. This option eliminates COM as an interim step, allowing the staff more time to prepare the user for a transition to a permanent on-line system. Eliminating unnecessary changes in the format is extremely important to the public service aspect of any library.

Content Alternatives

An add-on card catalog would have to begin from scratch, and, in the minds of most users, would hardly be worth consulting in the

beginning. This factor is a significant disadvantage of this option.

In terms of types of materials, all of the current types could be included in an add-on card catalog. Additional materials, such as science library subject cards and documents, could be included as well, whereas a fiche catalog may not include certain types of materials (e.g. Non-Roman scripts).

Bibliographic display alternatives

Our recommendations for bibliographic display under this option are the same as those listed in the discussion of Option II above.

Links alternatives

The minimal links alternative is a viable one for the user, provided that the internal reference structure of each catalog is full and complete. See references are the backbone of this alternative, and our user study has shown that the great majority of users know how to follow them. When a heading has changed, an extra step in searching is required, and the user must have a bit more persistance. On the other hand, will not most unpersevering users balk at searching a second catalog at all, even if a link is provided?

However, this alternative will not render acceptable service to the user unless inadequacies in the reference structure of the present catalog are corrected. As one example, many references of the type "University of Michigan see Michigan. University." have not been made. Such an omission becomes a serious pitfall for the user when a second catalog is started, and the heading is established

in it as "University of Michigan." When beginning a search in the new catalog, one discovers the heading in the new form. If the search is continued in the old catalog, the natural course is to look under the same form. If a cross reference was never made, the user finds nothing and is quite likely to conclude that the heading is not present in the old catalog. There must be cross references in the old catalog to lead the user from the AACR2 form back to the old form. Correcting the omissions has the added advantage of providing further assistance to users who are only searching within the old catalog.

Moreover, the minimal links alternative is no longer viable for the user if the reference structure of the new catalog is less complete than that of the old one. The user should not be forced to cope with two different reference structures in the two catalogs. On the basis of past experience, he/she may expect to find certain types of cross references in the new catalog and conclude that the heading being searched is not present if such cross references are no longer made. Besides, should we not strive to present the user with a new catalog which will offer greater services, not fewer?

D. BASIC OPTION V: Close in 1981 and Create an Add-on COM Catalog; Later Switch to an On-line Catalog

Although the Task Force ranks this option third, it presents little to recommend itself from the user point-of-view. The user advantages and disadvantages of the COM format in general are set out in Section IV.C above. In considering COM in the context of this option, as an interim catalog between the present card catalog and a future on-line catalog, the disadvantages far outweigh the advantages. Indeed, the only reason for the relative position of Option V is the fact that it includes an on-line catalog as its ultimate goal.

It is difficult to justify the adoption of an interim COM catalog except perhaps in terms of economy. Is the prospect of providing remote access and inexpensive union catalogs compelling enough to force users to cope with split files, supplements, and hundreds of fiche? If the purpose of the catalog is to provide users with intellectual access to the library's collections, can we justify a course of action which throws up so many barriers in the way of that access?

The Task Force feels strongly that a distinction must be made between COM as a supplementary form of access to the collection (COM as a back-up to an on-line system) and COM as the only form of access. COM as a by product of machine-readable cataloging can offer users certain distinct features--specialized catalogs, "portable" catalogs, and browsable catalogs, to name a few. However, under Option V, COM would represent the only form of access to a portion of the collection for a significant amount of time. It is in this context that the user disadvantages inherent in a COM catalog overwhelmingly outweigh the advantages.

If, however, the Committee chooses to recommend this option, the Task Force would like to make certain recommendations concerning the form and content of an interim COM catalog.

Links. The minimal links alternative would be acceptable in an add-on COM catalog, as in an add-on card catalog. This acceptability is dependent, however, on a complete and consistent cross-reference structure within both the new and old catalogs.

It has been suggested that see references from initials to the full form of a name need not be made within a COM catalog because, unlike a card catalog, the screen displays a number of records at once. We strongly advise against adoption of such a policy. In the previous section (V.C), some of the drawbacks in using a less-than-complete reference structure in the new catalog were enumerated. With COM there are additional considerations. It is true that in many instances a user might be able to find the proper entries for authors with uncommon surnames without full cross-references. However, if a user were attempting to locate a book by William E. Smith, known to him as W. E. Smith, it would be difficult to go from the abbreviated form of the name to the full entry unless a see reference was provided. In addition, it would be impossible to predict whether the entire relevant portion of a file would always appear in the same column, frame, or even on the same fiche. As the COM catalog grows, the user would increasingly suffer from the absence of these cross-references.

Bibliographic display. This question is in some respects a double-edged sword. Since it is difficult to predict how much of the catalog record any user might need to consult at any given entry point, it would seem preferable to provide full records at every entry point. However, this would result in an ever-more cumbersome

catalog, with the number of fiche required growing very rapidly.

It is likely that the majority of user needs would be satisfied by providing full records at the main and subject entry points, with truncated records for added entries. Full records at a single point (main entry or shelflist) with a series of register indexes to these records would not be an acceptable alternative from the user's viewpoint.

In addition, close attention should be given to the formatting of COM entries to provide the most legible records possible. (It remains an open question whether the demands of legibility and economic use of available space can be reconciled.)

Updating. The expense involved makes it impossible to produce completely merged COM files with any frequency. The user is thus often forced to consult the old catalog, the main COM file, and a COM supplement in an exhaustive search. Every effort should be made to arrive at an updating schedule which will provide users with a maximum number of records in the single sequence of the main file. In addition, the supplement should be cumulated no less frequently than weekly, and there should never be more than one cumulative supplement to the basic file.

Content. The Day One content of the COM catalog could consist of all AACR2 cataloging or all machine-readable cataloging. If the former alternative were chosen, the COM catalog would start small and stay small for a significant period of time. It has been demonstrated that users would be likely to ignore its existence altogether under these circumstances. If all OCLC cataloging were included in the Day One catalog, the catalog would aready consist of about 700 fiche (assuming no truncation). Although the size of the file would

make it more attractive to users, its size would also make it more difficult to use effectively. This problem would grow over time. While there would be difficulties with either option, the Task Force feels that the user would benefit most from the largest possible COM file.

In terms of types of materials, the COM catalog could include everything which could be input in machine-readable form. The only major problem would come with the inclusion of on-order information. This information could only be included in the cumulative supplement to the COM catalog, because of frequent additions and status changes. The Task Force feels that a separate on-order file would be unacceptable, since it would require searching an additional file.

E. BASIC OPTION I: Retain the Present Card Catalog Indefinitely

The great drawback to this option lies in the significance of "indefinitely." Following this option implies a belief that the card format will remain the format most advantageous for the user, despite any technological advances we can foresee. It also implies a belief that the card catalog will be able to cope with any rules changes and growth problems the future may hold. Because of these implications, we cannot rank this option very high.

In our opinion, the on-line format offers the user greater potential benefits than either cards or COM, and this format should be our ultimate goal. As already noted, the implementation of AACR2 will not seriously impair the usefulness of a card catalog in the short run. However, the passage of time is quite likely to bring further significant changes in cataloging rules, and the accumulation of measures to deal with these changes would eventually make a card catalog very difficult to use. In addition, the sheer size of our catalog already gives users some problems. As it grows with the passing years, these problems will increase. We cannot recommend a course of action which means a permanent commitment to the card format.

F. BASIC OPTION IV: Close the Card Catalog and Create an Add-on COM Catalog for an Indefinite Period

This is judged by the Task Force to be the least acceptable option for the future of the catalog from the user point of view.

This option not only incorporates all the inherent disadvantages of COM, but it would also--over an indefinite time--steadily diminish whatever advantages COM does offer. With the growth of the main file, widespread distribution and frequent updating would become more and more impractical. To keep the files from growing as fast, increased truncation could be expected, and certain specialized files (such as on-order information) might be excluded from the main file. As a result, the catalog would grow less and less responsive to user needs.

This option would mean that COM would be the only form of access to a significant portion of the library's collections for an indefinite period. This would mean that users would be faced with multiple-file searching for the foreseeable future. Clearly the catalog user would be increasingly ill served by an ever more unwieldy catalog configuration.

G. ADDENDUM: THE PRINCETON PLAN

After the preparation of our report had begun, another option for the catalog came to the attention of the Task Force. Princeton University has apparently decided to place all superseded headings in a separate file (the "dead file") as conflicts between old and new headings are encountered after Day One. The new headings will file into the main catalog, and links will be made in one direction only, from the main catalog to the dead file. Essentially this plan is a variant of the options to retain the present catalog after 1981 (Options I and II), the only significant difference being the creation of a new file for superseded headings. The plan does mean that users may have to search two files, but if the catalog were closed in 1981, they would have to search two (or more) files much more frequently. On the other hand, if the plan were coupled with Option II, when an online catalog was created there would be three possible places to search rather than two.

The Task Force is of the opinion that only a modified version of the Princeton plan should be considered by the library. Under Option II we have recommended a policy of interfiling old and new personal name headings. For these headings, interfiling is more beneficial to the user than either (1) the creation of split files within a single catalog or (2) the creation of a separate dead file. The Task Force therefore believes that a dead file should only be considered for those types of headings which would require split files within a single catalog, that is, corporate body headings which cannot be interfiled. For this reason the discussion which follows will only compare the Princeton system with a system

of split files within a single catalog. The discussion traces three possible types of seraches under these two options.

1. With the Princeton system, searching under a superseded heading for an item cataloged before Day One would be a much more complicated process. It is unlikely that any searches would begin with the dead file, except in the few cases where a user knew beforehand that a given heading was in that file. Beginning in the main catalog, a user would be led by a see reference to the new form of the heading and would then have to follow the link to the dead file. In the case of split files within a single catalog, the user should find the desired item on the first try.

2. With the Princeton plan, a user searching under a superseded heading for an item cataloged after Day One would only have to follow a see reference from the old form to the new form. With split files within a single catalog the user would have to follow a see-also reference.

3. With the Princeton system, searching under a new heading for an item cataloged under an old heading would be more difficult. As with split files in a single catalog, users would have to follow see-also references, but they would be more likely to go astray when directed to a small file separate from the main catalog. The basic difficulty with a dead file is that users tend to ignore it.

H. SUMMARY OF REASONING

1. A split catalog works great hardships on users, because they must search in more than one place and can rarely be certain about which file contains what.

2. However, the catalog must be split at some point, because in the long run the growth of the present card catalog and additional rules changes will give the user tremendous problems. Also, technological advances will soon make possible catalogs which will offer many benefits to the user beyond the capacities of the card catalog.

3. Since the catalog must be split, what form should the new catalog take? For the user, an on-line catalog has tremendous advantages--it is the most up-to-date system, allows for new search strategies, and can be integrated with acquisitions and circulation in a way not possible with any other system.

4. Since we must split the catalog at some point, let us wait until we can provide a new catalog which will offer the greatest improvement in service to the user--the on-line catalog.

5. If the card catalog is continued beyond 1981, the new catalog will contain a large number of records when it first appears. Its size will make it well worth consulting from the beginning.

6. Continuing the present card catalog for a limited time does not have serious drawbacks for users. In a minority of cases they might encounter confusing headings or references, but usually they would find the catalog essentially the way they are used to it.

7. Why is Option III ranked high? If the catalog must be split before an on-line catalog is feasible, we should choose the option which requires searching in only two places and retains the

format most familiar to users.

8. A COM catalog increases the disadvantages of splitting the catalog because often the user must search in at least three places. COM is the option which requires the most additional searching, and it also has certain updating problems. Finally, there is the COM growth dilemma: the COM catalog is either too large and unwieldly, or it has too much truncation, or it is started from nothing and is so small as to be nearly useless in the beginning.

VI. APPENDICES

Appendix I: Notes on the Faculty Forum

Appendix II: User Study

Appendix III: User Count

Appendix IV: Circulation Study for Items Having Corporate Main Entry

Appendix V: Studies of Previously Unestablished Headings

APPENDIX I: NOTES ON THE FACULTY FORUM

On April 18, 1979, members of the Task Force met with faculty representatives to discuss the future of the catalog. There were about 25 faculty members present and most participated in the discussion.

Mr. Seal opened the forum with a brief background summary including the development of AACR2 and the key options outline prepared by the Committee on the Future of the Catalog. He also presented information on COM catalogs and a display of sample fiche from other libraries.

After Mr. Seal's introductory remarks, the meeting was turned over to Mr. English. He began by commenting on the purpose of the forum--i.e. to gather information on how the faculty use the catalog and on their experiences with other libraries which have closed catalogs or catalogs in forms other than cards. The meeting was then opened for discussion.

Mr. Adams began by stating that he had used the on-line catalog at Ohio State. His reactions were favorable, but he noted that he preferred to have catalog cards available as well. A feature of the Ohio State system he found particularly attractive was that the on-line record indicated the current status of the book--i.e. available, checked out, at bindery, etc.

A number of the faculty members present expressed reservations about closing the catalog, because it would often force someone to search in two catalogs for the same book. Mr. Reed stated that the additional search time required would cut down on browsing in the catalog, an activity which often leads to the discovery of valuable material. In addition, he cautioned that while the library is trying to determine costs related to the card catalog, it should not overlook one important cost which is hard to pinpoint - the cost of faculty having to spend more time to do research. Another faculty member pointed out that if the additional time required were too great, the research might simply never be done, thus affecting promotion, tenure, etc.

Ms. Brown observed that up to one-third of the material she searches for in the catalog has been ordered but not yet cataloged. If on-order information were not included in the add-on catalog, the library would receive many more faculty requests for books already on order than it now does, resulting in additional searching load for the staff in Bibliography.

Mr. Bryan asked if departmental libraries might have some freedom to make decisions concerning their catalogs independent of Alderman's decision. He would prefer not to close their catalog. Mr. English pointed out that a COM catalog would enable every science library to have a union catalog of science materials. Mr. Bryan responded that serials are more important than monographs to scientists and that a union list of science serials already exists.

Mr. Dell voiced fears that the history department would be particularly hurt by closing and the creation of a second catalog. He noted that history faculty and students make great use of older materials. They might expect to find such material in the old catalog, but because of the library's extensive retrospective buying, it might well be in the new catalog instead. As a result, they would very often have to search both places. As the new catalog grew in size, this double searching would increase.

When it was asked how soon an on-line catalog might be feasible, Mr. Seal answered that the University Computer Center had told him it could be done within five years. Mr. MacAdam then suggested that the library keep the present catalog open until it is able to implement an on-line one. Mr. Adams expressed some doubt about the five-year estimate and added that it might be more expensive to work toward an on-line catalog by degrees, with an interim COM catalog, than to move directly to on-line.

The possibility that some files in a new catalog might contain truncated records was discussed. Ms. Manes stated that if only one file could contain full cataloging information, it should be the subject file, since users searching that file tend to have the least initial information.

Mr. Whitman suggested that raised or colored cards be used for the linking see-also references if the catalog were not closed, making these references more visible to users.

Mr. Dell admitted that the history department would be able to live with a COM catalog, but he stressed that the library must make a very strong case on economic grounds before adopting one. However, Mr. Reed warned that the library could not first justify a COM catalog on the grounds of economy and then reverse itself and call for an expensive on-line catalog because of the better service it would provide. He noted that it would be more politically sound to continue the card catalog until the increasing cost of maintaining it and the decreasing cost of computer storage would allow a strong argument to be made for an on-line catalog.

At the conclusion of the meeting, Mr. Adams asked that the library staff not attribute any consensus to the opinion which had been expressed.

APPENDIX II: USER STUDY

There are key questions concerning how people use the catalog for which the literature at present does not provide answers. Our Task Force's user study was an attempt to shed a bit of light on some of these little studied problems, in particular user handling of cross references, on-order slips, and corporate entries. A greater understanding of how these elements of the catalog are used is essential to determine what future configuration of the catalog will best meet the user's needs. Serious time constraints prevented us from conducting a study according to all the rules of proper research, but we did hope to discover some rough trends, some tentative answers. To a lesser degree, we were interested in seeing if our library's users behave in accord with some findings already reported in the literature.

We drew up a list of five questions which required those interviewed to search the Alderman catalog to see if the library owns certain items. Although we were in effect presenting users with artificial problems, this was the best way (given the limited time available) to focus on the specific topics which interest us.

The six members of the Task Force conducted the study in Alderman Library from mid-April to early May of 1979. A total of eighty-five people were interviewed. Task Force members approached people at random in the Alderman public catalog and asked if they would be willing to participate in the study. There was no attempt to obtain a set percentage of any particular type of user. Some attempt was made to avoid full-time library staff and personal acquaintances of the interviewer.

Participants were told only that the library was studying how people use its catalog in hopes of making the catalog easier to use in the future. They were given the five questions and instructed to answer them by using the catalog. The interviewers followed them as they searched and made notes on the interview sheet. When they located an item, they were to show the appropriate card to the interviewer. If at any point they concluded that the library does not own the item in question, they were to notify the interviewer and proceed to the next question. They were told that there is no guarantee the library owns all five of the items.

The table on pages 100-104 contains the cumulative total of the eighty-five user interviews. At the outset, each user was asked his/her academic status. Staff members, however, were tallied only in the category "library staff," not according to their academic status.

The first question is straightforward: the book can be located under either the author or the title exactly as stated in the question. Our purpose was to determine if Alderman users follow the tendency noted in the literature to search by author rather than by title. The figures clearly indicate a preference for searching by author.

At the time of the study, the book in the second question was represented in the catalog only by an on-order slip filed under "Karl, Frederick Robert, 1927- ." We were trying to determine how well users understand the meaning of these slips. Shortly after the study had begun, it was decided to show the on-order slip even to those interviewees who did not find it themselves and to ask them what the slip meant. A number of people had missed the slip because they did not realize it was filed before all the title entries and given name entries beginning with "Karl." As can be seen from the results, the great majority realized that the book was on order and claimed that they would ask for help if they needed the book right away. On the other hand, only about one-fourth knew that the book might already be in the library. A change in wording on the slip could make this valuable information available to the public. Also, it is worth noting again the tendency to search by author rather than title.

The third question was intended to test the user's ability to follow see-also references, as they are the basis of links. We experienced some difficulty in finding a suitable see-also reference for the test and were forced to use a corporate body in a foreign language. This organization is represented in the catalog in two forms, "Institut d'Etudes Slaves" and "Paris. Université. Institut d'Etudes Slaves," linked by see-also references of the earlier-later name type. It was necessary to use the traced series rather than the actual author and title of the book. The question has the corporate body's name in the wrong form, so that the user had to follow the see-also reference from "Institut..." to "Paris. Université. Institut..." to find the book.

In interpreting the results, one should focus on the figures for "e" and "g"--How many of those who searched under "Institut..." found their way to "Paris. Université. Institut..."? The results show 34 out of 46, or 73%, were able to follow the see-also reference. It is also worth noting that over half the people tested first searched by title, despite the clear tendency displayed in the previous two questions to look first under author. This suggests that many users do not realize that corporate names offer a possible approach to the catalog, or at least that they prefer a title approach to the catalog when a corporate body is involved. Of the thirty nine who searched first under title, only fourteen continued their search under "Institut..."

Question four was designed to yield some information on how users search for a specific volume of a periodical. The question gives the name the journal had at the time volume one was published, but the current name is the Journal of American History. In the author/title catalog there is a see reference from the old name to the new, but because of an oversight, there is no see reference in the O.S.C. The data indicate that many users are aware of the O.S.C.; more began their search there than in the author/title catalog. However, to answer this question a user had to continue the search in the author/title catalog after finding nothing at all in the O.S.C. or periodical printout. Most of those who did not begin their search in the author/title catalog never searched there. "D" minus "C" represents the number of people who searched the author/title catalog

after beginning their search elsewhere. This is only 36% of those who first searched in the O.S.C. or periodical printout. Why such a low percentage when the author/title catalog is surely the part of the catalog most familiar to users? We may well be witnessing the dangers of user preconceptions about what materials a file contains. Many may have believed that periodicals are recorded only in the O.S.C. or the printout.

This question also gives an indication of users' ability to follow see references. Thirty-nine of the fifty-two who searched the author/title catalog under "Mississippi..." went on to search the same catalog under "Journal..." To determine how many were able to follow the reference, however, we must also take into account those eight people who went directly from it to "Journal..." in the O.S.C. Thus we calculate that forth-seven out of fifty-two, 90%, were able to follow the see reference.

The great majority of those tested did not check the holdings card in the O.S.C. and were tallied under "i." An interviewee tendency to conclude that the library owns the volume after seeing "1914" as the beginning date designation on the card in the author/title catalog accounts for some of these cases. A better designed study would have chosen a volume other than the first one for the question. In addition, some people indicated that they would go directly to the stacks as soon as they found the call number on the author/title catalog card.

The final question was intended as a general test of user persistence in pursuing a complicated search. ASHRAE is an acronym for American Society of Heating, Refrigerating and Air-Conditioning Engineers. Only by examining the holdings card in the O.S.C. could the interviewee discover that the 1967 edition is in the Fine Arts Library. As the results make plain, very few people made that discovery. Apparently few realized that the handbook is treated as a serial--only six searches began in the O.S.C. Most people found a full record in the author/title catalog and concluded without further investigation that the library owns the volume. As in the previous question, there were cases of drawing false conclusions from the beginning date designation. [The 1967 edition is the first edition of the handbook.]

The study left us with some impressions not reflected in the figures. People seemed more likely to go astray in large files of similar headings; the sheer size of our catalog is definitely a problem. Careless mistakes involving a preposition or a single letter in a word appeared frequently. For example, in the first question some people searched "Chiara, Joseph" instead of "Chiari, Joseph" and were led by a see reference to "De Chiara, Joseph." Often, when interviewees were completely stymied, they said they would turn to library staff for assistance. How often they actually ask for help with real catalog use is an open question.

QUESTION SHEET

1. Does the library have a new book on the arts and society entitled The Aesthetics of Modernism by Joseph Chiari?

2. Does the library have a book entitled Joseph Conrad: The Three Lives by Frederick R. Karl?

3. Does the library have number 5 of the Textes of the Institut d'Etudes Slaves?

4. Does the library have volume 1, 1914, of the Mississippi Valley Historical Review?

5. Does the library have the 1967 edition of the ASHRAE Handbook of Fundamentals?

GRAND TOTAL

1 100

INTERVIEW SHEET

Status: Undergraduate 50 Graduate 22 Faculty 1 Library Staff 11 Other 4 = Total 85

1. Does the library have a new book on the arts and society entitled The Aesthetics of Modernism by Joseph Chiari?

Searched first under:

a. 80 author

b. 5 title

c. __ subject

d. 7 Searched more than one place

e. 78 Found

f. 7 Did not find

Comments:

2. Does the library have a book entitled Joseph Conrad: The Three Lives by Frederick R. Karl?

Searched first under:

a. 75 author

b. 8 title

c. 1 subject

d. 10 Searched more than one place

e. 68 Found under author

f. 17 Did not find order slip

If found, interviewer asks person: "What does this slip mean?"

Response:

g. 74 Knows that the book is on order

h. 21 Knows that the book might be in the library

i. 4 Other

2. Contd.

Interviewer asks: "What would you do if you wanted this book as soon as possible?"

Response:

j. 68 Would ask as Information Desk, Reference, or Circulation

k. 14 Other

Comments:

3. Does the library have number 5 of the Textes of the Institut d'Etudes Slaves?

Searched first in:

a. 63 P.C.*

b. 16 O.S.C.

Searched first under:

c. 39 "Textes"

d. 37 "Institut d'Etudes Slaves"

e. 46 Searched P.C. under "Institut d'Etudes Slaves" at some point

f. 40 Found see-also reference in P.C. from "Institut d'Etudes Slaves" to "Paris. Université. Institut d'Etudes Slaves"

g. 34 Searched P.C. under "Paris. Université. Institut d'Etudes Slaves"

h. 31 Found number 5 of the "Textes"

i. 54 Did not find

Comments:

4. Does the library have volume 1, 1914, of the Mississippi Valley Historical Review?

Searched first under "Mississippi" in:

a. 38 O.S.C.

b. 9 Periodical Printout

c. 35 P.C.

d. 52 Searched P.C. under "Mississippi" at some point

* Throughout this survey, P.C. refers to author-title catalog only

4. Contd.

e. 51 Found cross-reference in P.C. to "Journal of American History, 1914"

f. 39 Searched P.C. under "Journal of American History"

g. 11 Searched O.S.C. under "Journal of American History"

h. 11 Found

i. 72 Did not find

Comments:

5. Does the library have the 1967 edition of the ASHRAE Handbook of Fundamentals?

Began search in P.C.

a. 56 Searched ASHRAE as a word

b. 17 Found x-ref. to main entry

c. 8 Found m.e. in P.C.

d. 3 Found m.e. in O.S.C.

e. 3 Found holdings card

f. 51 Found title a.e. in P.C.

g. 3 Found title a.e. in O.S.C.

h. 6 Found m.e. in O.S.C.

i. 5 Found holdings card

Began search in P.C.

j. 12 Searched ASHRAE as initials

k. 12 Found x-ref. to m.e. in P.C.

l. 8 Found m.e. in P.C.

m. 3 Found m.e. in O.S.C.

n. 3 Found holdings card

Began search in O.S.C.

o. 5 Searched ASHRAE as word

p. 3 Found x-ref. to m.e.

q. 3 Found m.e.

r. 2 Found holdings card

s. 1 Found title a.e.

5. Contd.

Began search in O.S.C.

t. 1 Searched ASHRAE as initials

u. 1 Found x-ref. to m.e.

v. 1 Found m.e.

w. 1 Found holdings card

x. 72 Did not find

Comments:

APPENDIX III: USER COUNT

Our Alderman Library catalog user count was conducted between February 26 and April 29, 1979, and consisted of a more or less hourly count throughout each day of people using the card catalogs (author/title, official serials, and subject). Library staff and other users were counted separately. People who were obviously just socializing were not counted.

As, for various reasons, a count was not taken every hour of every day, the most significant numbers derived from the count were the average numbers of users at any given hour for the entire period of the count. These averages basically bear out the observations made in Lipetz' studies. Alderman patron catalog use starts slowly in the morning, increases steadily to an all-day peak in the early-to-mid afternoon, drops off rapidly around the dinner hour, and then reaches a second, lesser, peak around 8 p.m. The one significant variation between our count and the Lipetz study was that there was a marked drop-off in catalog use around lunch-time at Yale, while no such drop-off was observed at Alderman.

A comparison of our count and our circulation statistics show that on a day-to-day basis, catalog use and book circulation fluctuate in direct relationship to each other, with maximum catalog use and circulation occurring on Tuesdays, the minimum on Saturdays. This finding corresponds also with Lipetz' observations.

The period of the count was not one of maximum book circulation in the academic year and therefore, presumably, not of maximum catalog use. Bearing this in mind, the highest number of non-staff users counted in the catalog at any one time was 16, at 2 p.m. on a Thursday afternoon, with most daily maximums falling between 10 and 13. The highest average non-staff use was 8.6 at 3 p.m., the lowest 2.8 at 9 a.m., and the evening peak average non-staff use was 5.5 at 8 p.m.

Library staff use of the catalog differed dramatically from non-staff use, with the major portion of such use occurring before 10 a.m. and then decreasing steadily until 5 p.m., after which it was truly minimal. The bulk of the staff use before 10 a.m. was filing-related. An average of 13 staffers were using the catalog at 9 a.m., with as many as 19 counted one Monday morning.

Our catalog use count indicates that it would be appropriate to make assumptions of usage patterns for Alderman's catalog based on published studies and our own circulation statistics. We would, of course, need to make our own numerical counts if precise numbers were needed.

A table of the hourly averages is appended to this summary.

Average number of Alderman Library catalog users counted hourly between February 26 and April 9, 1979. Includes author/title, official serials, and subject catalogs.

Time of count	Non-staff user	Library staff user
9 a.m.	2.8	13.0
10 a.m.	4.4	4.6
11 a.m.	5.6	5.4
Noon	6.6	4.0
1 p.m.	6.8	1.7
2 p.m.	8.0	3.1
3 p.m.	8.6	2.4
4 p.m.	5.5	1.8
5 p.m.	4.2	.75
6 p.m.	5.3	.2
7 p.m.	4.6	--
8 p.m.	5.5	--
9 p.m.	5.3	--
10 p.m.	4.2	--
11 p.m.	3.2	--
Average daily use:	6.24	3.1

APPENDIX IV: CIRCULATION STUDY FOR ITEMS HAVING CORPORATE MAIN ENTRY

In order to obtain some indication of the rate of use of items having corporate entries, a study of one year's circulation records was undertaken.

During the 1977-78 year, 268,807 call numbers circulated through the batch circulation system at the Alderman circulation desk. These call numbers represented 150,000 unique titles. From the file of 268,807 call numbers, 457 (a sample size slightly less than two tenths of one percent) were selected at random. These call numbers were checked against the shelflist and categorized according to type of main entry. Not including the 12 call numbers which could not be found in the shelflist, the totals were as follows:

Personal main entries	392	88.09%
Corporate or conference main entries	18	4.04%
Title main entries	35	7.86%

The random sample of 3346 records from our OCLC archival tapes had the following distribution of main entries:

Personal	2830	84.58%
Corporate or conference	205	6.13%
Title	300	8.96%
Uniform title	11	.33%

The results of the sample indicate that items with personal main entries circulate at a rate above the proportional representation of these entries in the catalog and that items with corporate and title main entries circulate at a rate below their proportional representation. More specifically, corporate main entries circulate at a rate one third less than their representation in the catalog, 4% versus 6%. This assumes that the archival tape gives an accurate reflection of the total catalog.

This finding should be interpreted with caution, since the sample size was small and the results were not tested for statistical significance. Also, the circulation system does not include certain types of materials, primarily periodicals. Presumably, however, if periodicals were included in the circulation data, the percentage of corporate main entries which circulate would not be significantly affected, since periodicals have primarily title main entry.

The result of this study suggests that the actual catalog use of corporate main entries is less than their representation in the catalog, but this cannot be stated with certainty. Presumably circulation does reflect catalog use to an extent, but the correlation between the two is not exact. The fact that an item circulates does not indicate how it was actually found (if it was searched in the catalog), since it may have been sought under main entry, added entry, title, or subject.

APPENDIX V: STUDIES OF PREVIOUSLY UNESTABLISHED HEADINGS

The following are the results of two studies which were carried out to provide more accurate information on how many conflicting entries would appear following the implementation of AACR2. Both are based on the premise that an entry which appears for the first time would create no conflict.

The first study dealt with the OCLC sample which was analyzed by the Cataloging Department to determine what percentages of entries would have a different form of entry under AACR2. The 74 entries which would change (15% of the OCLC sample) were checked in the P.C. to determine if there were earlier records under the same heading. In those cases where there was an earlier record, the number of additional cards in the file was also counted.

Results:

Number of additional cards in file	Number of headings
0	24
1	6
2	9
3	4
4	2
5	2
6	4
7	3
8	1
9	2
10 or more	17
Total:	74

Results show that for 24 entries, or roughly one-third (32.43%) of those which would differ under AACR2, there was no previous record under the heading. A total of 45 headings (or 60.81% of those which would change) were in files of five cards or less.

The second study involved a sample count of the on-order file to determine what percentage of its entries are established in the P.C. (Order cards are marked "PC" if the main entry is established.) The file was measured at 175 points at intervals of 1", and four cards were taken from each point. A total of 699 cards (we missed one) were categorized according to type of heading and whether or not it was established. Orders for Clemons were counted separately, as it was assumed that almost all of them would be established. Science titles (which are ordered under title) and title main entries were also counted separately.

Results:

1. Entries established in P.C.

Personal	257
Corporate	20
Conference	2
Uniform title	0
Total	279
Percentage	52.74

Entries not established

Personal	228
Corporate	18
Conference	3
Uniform title	1
Total	250
Percentage	47.26

2. Clemons

Established		Not established	
Total	53	Total	3
Percentage	94.64	Percentage	5.36

3. Totals including Clemons

Established entries	332	Not established	253
Percentage	56.75	Percentage	43.25

4. Title main entries, total of 88
Science titles, total of 26

The main finding is that almost one-half (47.26%) of the main entries in the on-order file, exclusive of Clemons, were not previously established in the P.C.

Problems: Sample size in the first study was very small, so conclusions drawn from it should be cautious. In the second study the percentage of not established entries in the on-order file is certainly somewhat higher than the actual percentage, since some cards were probably not marked "PC" by the searchers--either through oversight or through failure to find an existing entry. Also, the order file may not be an exact reflection of items actually received and cataloged. Finally, the order file gives an indication of main entries only; percentages for various kinds of added entries could conceivably be very different.

Despite these problems, we can be fairly certain that a significant percentage of entries at the time of cataloging, probably somewhere between one-third and one-half, occur for the first time. This is not unlikely, since a very high percentage of books are written by first time authors.

After these studies were completed, a member of the Task Force received results of a similar study at the University of Pennsylvania. The sample at Penn was one week of cataloging output. The study "found that out of a total of 998 entries, 309 (31%) were new and 689 (69%) had been previously established.

In applying AACR2 to the 689 entries 76 (11.4%) definitely changed their form of entry" (Univ. of Pennsylvania Libraries Newsletter, May 2, 1979). The 31% figure for previously unestablished entries conforms closely to the results of our OCLC sample study, where 32.43% of the headings were new.

However, at the A.L.A. Conference in Dallas, William Potter of the University of Illinois presented a paper on the new headings question. His study was done in the University of Illinois and also in a smaller academic library. Potter's results, which were based on larger randomly selected samples, were close to those of our on-order file study; almost 50% of entries were not previously established. A summary of the study has been requested by a member of the Task Force and will be reported to the Committee when received.